Dental Digest

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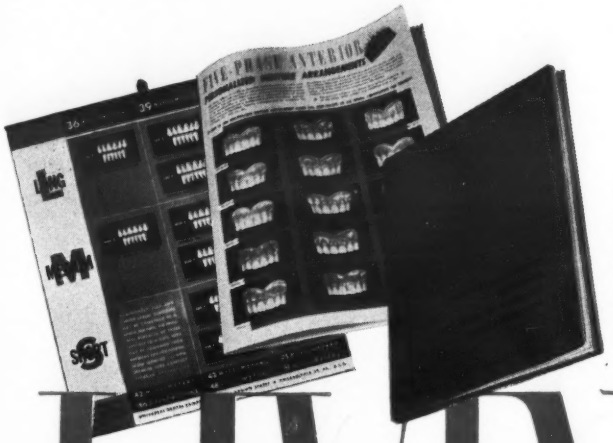

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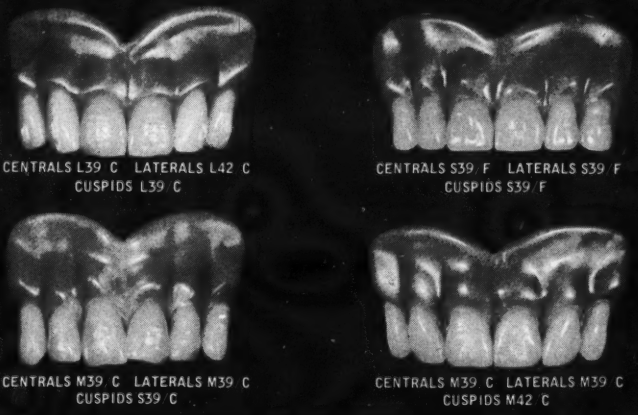
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Vol. 58, No. 12

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Surgical Preparations of the EDENTULOUS MANDIBLE

E. T. LEWIS, B.S., D.D.S., Pittsburgh

DIGEST

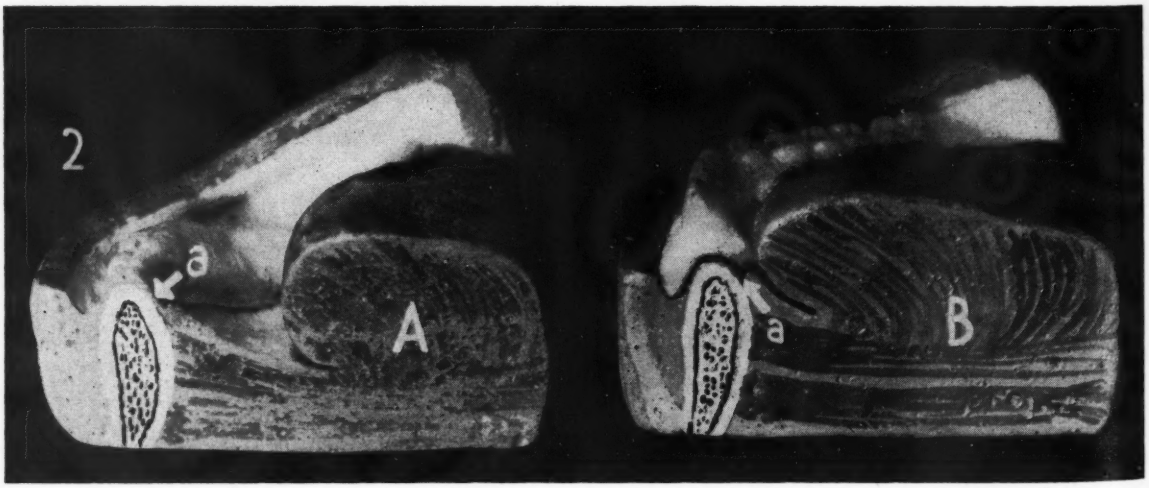
In the March 1952 issue of DENTAL DIGEST[1] the author of this article reviewed the classifications of conditions in the edentulous mandible and emphasized the anterior lingual region as the most important area with which to be concerned during the construction of lower dentures.

Dentists in general agree that lower denture construction often presents extremely difficult problems and many resources are required to master the technique of constructing a successful prosthesis. In some cases, because of inherent features of the mandible, it is impossible to complete a lower denture with maximum stability until the anterior lingual area has been corrected surgically. This article discusses the techniques for preparing the anterior lingual area, thereby simplifying the problems most frequently encountered.

[1]Lewis, E. T.: Classifications and Corrections of the Mandible for Full Denture, Prosthesis, DENTAL DIGEST **58**:106-141 (March) 1952.

1. *Draping floor type of mandible having no sublingual fold space (a) when the tongue is in a retruded position or in a functional position.*

2. *(A) Crosscut view showing no sublingual fold space (a). (B) Crosscut view showing the denture in place and the tongue in a functional position. Note that there is no sublingual fold space (a) to seal the denture properly.*



3. *(A) Showing incision from cuspid-to-cuspid area. Note the position of sublingual fold (a). (B) Wick is sutured to the crest of the ridge. Showing sutures attaching the wick to the ridge (a). Showing sutures attaching the sublingual fold to the wick (b). (C) Crosscut view showing the wick in position (a).*

4. *(A) Crosscut view showing the removal of the wick. Note the sublingual fold (a) and sublingual fold space (b). Compare this view with Figure 2A. (B) Crosscut view showing the denture in place in relation to the sublingual fold (a) and sublingual fold space (b).*

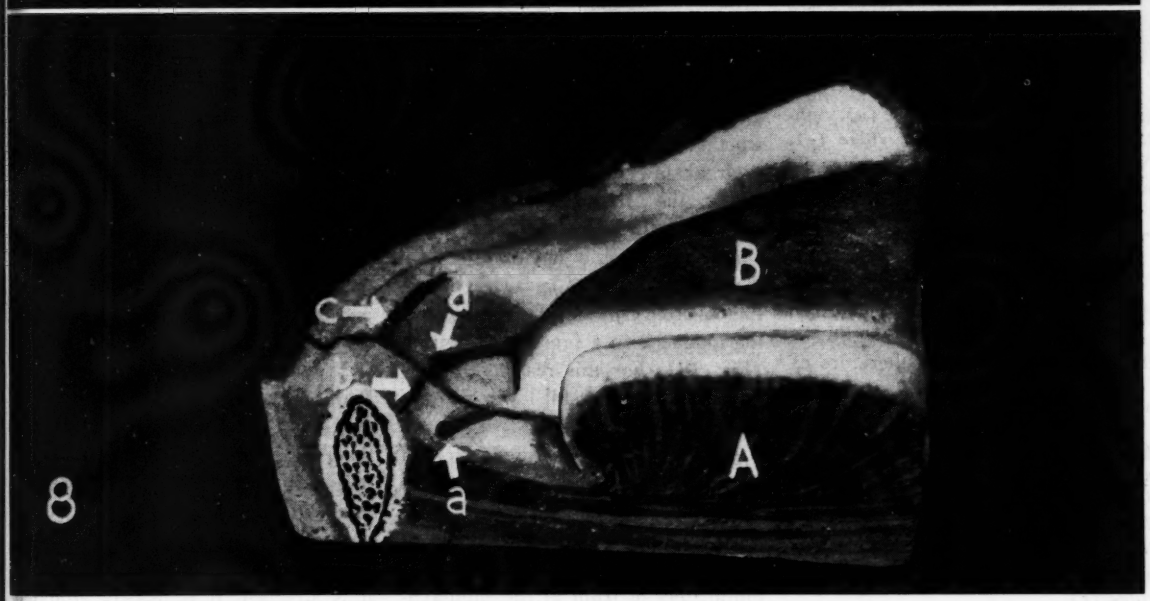
Area of Importance

Little has been written about the correction of the anterior lingual area of the mouth which is of the greatest importance in a satisfactory application of the lower denture. It is because of the anatomic and physiologic difficulties presented by many mandibles that dentists are turning to the implant technique.

Use of Implants—Some implants are placed in what would seem to be extremely uncomplicated situations, such as (1) the presence of ridgeless mandibles with floating glands, and

5. *(A) High spiny ridge (a). (B) Crosscut view showing a high spiny ridge (a).*

6. *(A) Showing the ridge reduced with a high frenum attachment. (B) Crosscut view showing the ridge reduced and a high frenum attachment (a). (C) Crosscut view showing the denture in place in relation to the sublingual fold when the tongue is in a retruded position (a).*



(2) ridgeless lowers with a high sublingual fold.

Implants have also been used appropriately in cases having (1) a high genial tubercle, (2) a draping floor type with the submaxillary duct openings near the crest of the ridge, therefore having no sublingual fold or sublingual fold space, and (3) in cases where the combination of the latter two abnormalities exist. If these conditions were to be corrected, in the author's opinion implants would be useful only in the presence of emotional disturbance, paralysis, similar situations, or the expressed desire of the patient.

Conditions in the Ideal Mandible—The presence in a patient's mouth of a sublingual fold and sublingual fold space represents an ideal mandible for the construction of a satisfactory lower denture. In correcting the first bicuspid-to-first bicuspid area an attempt should be made to reproduce this ideal condition.

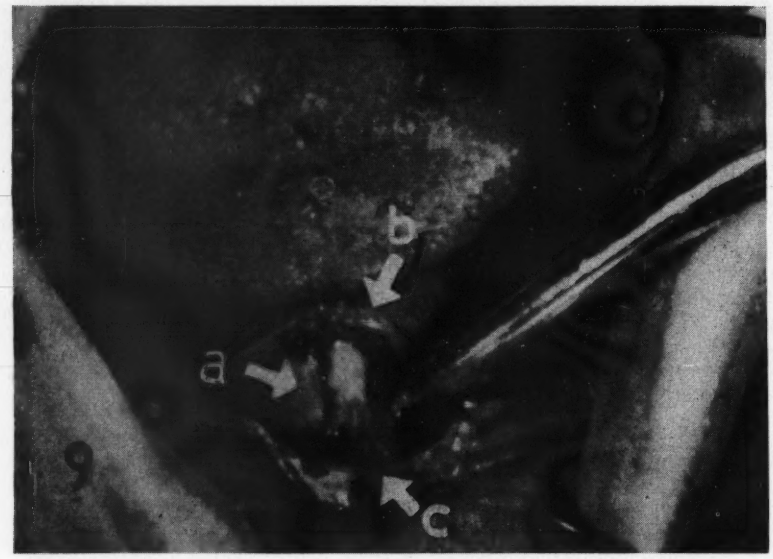
7. ***(A) Crosscut view showing the removal of the wick. Note the sublingual fold (a) and the sublingual fold space (b). (B) Crosscut view showing the denture in place in relation to the sublingual fold (a) and the sublingual fold space (b).***

8. ***(A) Showing position of sublingual fold before flap is cut (a). Flap is cut at (b). (B) Showing where flap is sutured (c). Showing position of sublingual fold after flap is cut and sutured (d).***

Techniques in Difficult Cases

The methods described are a means of simplifying the necessary surgical preparation of the mandible before construction of the denture is begun.

No Subingual Fold Space When the Tongue is in a Functional Position—The position of the frenum is extremely influential. For this reason, in a mandible having a high lingual frenum attachment (Figs. 2A and 6B) leaving no sublingual fold space when the tongue is in a functional position (Fig. 2B), it is difficult to



9. ***Exposed genial tubercle (a). Sublingual fold (b). Crest of ridge (c). Note that it is practically a ridgeless mandible with a high genial tubercle.***

obtain a lower denture with maximum stability.

Controlling Area—Because this is the controlling area and therefore of great significance, note in particular whether the frenum attachment is high or low on the alveolar ridge. When the frenum attachment is high, in many cases it will be impossible to establish a favorable seal in the final impression because no sublingual fold space is present when the tongue is in a functional position (Fig. 2B). For this reason, there is no key to a successful lower denture in this situation.

10. ***(A) Ridgeless mandible having a sublingual fold (a) but no sublingual fold space (b). A slight ridge (c). (B) The same mandibile after repositioning the sublingual fold (a) providing a sublingual fold space (b). Slight ridge (c).***

Procedure—A simplified surgical procedure for repositioning the sublingual fold is the following:

1. Make an incision in the area of the cuspid-to-cuspid region, about 3 millimeters in front of the submaxillary duct openings (Fig. 3A). Spray Hemolox (a hemostatic coagulant which aids granulation and is germicidal). Note that the lingual frenum will fall back, making a sublingual fold and sublingual fold space. It is important to preserve this position of the sublingual fold.

2. Suture a 1-inch piece of alcohol lamp wick wrapped in one or two layers of gauze on the crest of the ridge (Fig. 3B).

3. Suture the sublingual fold to the gauze (Fig. 3B).

4. Instruct the patient to limit the use of his tongue. Check the patient's mouth every day. On the fourth day remove the gauze.

5. If the patient has dentures, correct his lower denture so that it does not impinge upon or traumatize that area. Instruct him to wear his dentures.

6. If the patient is not wearing dentures, instruct him to keep a piece of cotton roll under his tongue for a few days. It will be evident that the patient now has a sublingual fold and a sublingual fold space (Fig. 4A).

High Spiny Ridge (Fig. 5A)—1. Reduce the ridge so that it is round and smooth (Fig. 6A). The height of the ridge is not important; in fact, height is a detriment in most cases, to the final results.

2. Examine the lingual frenum carefully and locate the point where it is attached. It is usually attached

near the crest of the ridge (Fig. 6B). In this case a sublingual fold and sublingual fold space must be established. Perform the operation illustrated in Figures 3A, 3B, and 3C.

3. Frequently, upon examination after the spiny ridge had been reduced, the ridge appeared to be satisfactory, but the prospect of constructing dentures with maximum stability was doubtful and in many cases, impossible, because the patient had no sublingual fold and sublingual fold space. The condition described was similar to that shown in Figure 2A.

Suturing—The condition illustrated in Figure 8 has been created many times because of carelessness. For example, many operators remove the lower teeth and perform a satisfactory alveolectomy but make the mistake of trimming the lingual flap too extensively, so that when suturing it the labial flap is naturally pulled up. Consequently, the position of the sublingual fold is changed. The condition illustrated in Figure 2A is again present.

Removing a High Genial Tubercle and Repositioning the Sublingual Fold—1. Make an incision from the cuspid-to-cuspid area over the crest of the ridge, favoring the labial side.

2. Expose the tubercle (Fig. 9) and reduce it enough to provide a sublingual fold space without interference when surgery is completed. In the author's opinion no harm would result from cutting all of the attachment. Anatomists, however, state that complete severance of the genioglossus muscle would result in the patient becoming tongue-tied. In fifty such operations performed by the author it has been found unnecessary to destroy the attachment on most of them. However, on six cases in which the tubercles were extremely high, the attachments were released and no ill effects ensued. Many times it is necessary to reposition the sublingual fold after removing the genial tubercle. In that event, the operation is performed as described in Figures 3A, 3B, and 3C after suturing the flap that was made to remove the tubercle.

Medication

Inject into the arm or buttock 1 cubic centimeter of Duracillin Fortified® (procaine penicillin G, and penicillin G, crystalline-sodium) buffered, for aqueous injection. Repeat if necessary.

Causes of Failures

The mandibles described have caused many failures in denture construction despite the skill of the operator. Unless the dentist becomes familiar with, and understands, the techniques for surgical preparation described herein, he will have difficulty in establishing true and lasting peripheral boundaries.

Failures in lower denture construction are largely the result of the following factors:

1. Improper surgical correction of the mandible.

2. Unsatisfactory preliminary impressions which influence the extent of the boundary.

3. The absence of a definite plan of boundary outline.

Conclusion

If a lower denture is constructed with adhesion, suction, horizontal stability, and a full functional periphery, it will not require a great deal of time to instruct the patient in its use, and months of practice on the part of the patient to control the dentures during function will be eliminated.

The author has solved the problem of constructing difficult lower dentures with the aid of the technique described.

4117 *Jenkins Arcade.*

Protein and Dental Caries

GERALD J. COX, Ph.D., Pittsburgh

THERE IS increasing evidence that the quality of the enamel of teeth is the determining factor in whether tooth decay may be initiated. Either high meat diets or miscellaneous diets with water providing the right amount of fluorine lead to the formation of decay-resisting enamel. There is the possibility of a subtle relationship between these two dietary measures but the simpler view is that meat works in one way and fluorine in another.

Enamel, the armor against decay, contains less organic matter, and hence less protein, than any other tissue of the body. But it has not been shown that there are different amounts of the protein in teeth that decay and in those that do not. There is a theory that teeth decay because of initial attack on protein constituents. This needs much support to compete with the theory of cariogenesis based on acid attack on the inorganic constituents of the teeth. This acid comes from carbohydrates via bacterial metabolism.

Though enamel has a minimum of protein it must not be forgotten that protein in an animal can come only from protein of the diet. The ameloblast, the cell that deposits enamel, is unique in its task and may be unique in its requirements for nutrients. It may do its best job in building decay-resisting enamel as indicated by the results of animal studies, when there is good quality protein such as meat to sustain it.

In conditions for building caries-resistant enamel, the quality of the protein, that is, its amino acid make-up and its digestibility, is important. In contrast, the inertness of protein in the mouth is the desired characteristic for the slowing down or arrest of the decay process. As protein is not digested in the mouth (except by bacteria which reduce it to products that generally do not attack enamel) it is an arresting agent for dental caries in contrast to carbohydrates.

From *Food and Nutrition News* **24**:4 (Oct.) 1952.

The HINGE-BOW

HARRY L. PAGE, Valparaiso, Indiana

DIGEST

The hinge-bow is a mechanical device that is attached to the mandible to locate the condylar hinge-axes and to study and record the pattern of jaw and condylar motion. As the mandible moves, the hinge-bow moves with it. Facts concerning the origin of this device, its importance in articulation, and its ability to answer physiologic questions is the context of this article.

New Device Originated

In 1926 Beverly B. McCollum of Los Angeles designed and demonstrated a practical device for locating the rotational axes of the human condyles. Operating on the geometric principle that the loci of all points on a given radius have a common center, in some respects the device resembled the familiar face-bow. Closer examination, however, revealed any such resemblance to be entirely superficial.

Description—The new device was clamped to the lower jaw and was designed to move with it rather than to record a stationary bite. Instead of the usual U-shaped single and rigid bar, there was a detachable crossbar in front with two adjustably attached arms extending back and up toward the condyles. Both arms were, likewise, adjustable independently of each other and in all directions.

Finely Pointed Condyle Pins—In place of the clumsy condyle rods commonly used in the face-bow, there were slender, finely pointed condyle pins pointing toward the jaw joint. These could be slipped toward or away from the head in well-fitted sleeves. This was the device that is now known as the hinge-bow.

Manner of Function—When this apparatus had been firmly clamped to the lower jaw, the patient rhythmically opened and closed while holding the mandible in extreme retrusion. As a rule, the patient was assisted in maintaining retrusion by the operator who exerted force against the chin.

Action of the Condyle Pins: By carefully watching the condyle pins if and when they moved in arcs as the jaw opened and closed, it was evident that their points were not spotted over the rotational centers or condylar hinge axes.

Position of Pins Shifted: Using the various adjustments, the position of the condyle pins was shifted until they ceased to arc and began to spin over a single spot. The points were then inked and slid inward through their sleeves until the skin was touched and marked on each side of the head.

Hinge-axes Indicated: The resultant dots indicated the projections of the condylar rotational centers or hinge-axes. Later, these spots were tattooed for permanence.

Important Contribution

Other than curiosity, scant attention was given to McCollum's offering although it was and is one of the most important contributions made to dental science. After more than a quarter of a century apathy still prevails. Few college instructors are aware that there is a rotational center or hinge-axis in every condyle. Fewer still see any need to inform their students of this fact. This is unfortunate as articulation is not merely a branch of prosthodontia but the core of all dentistry. Untrained to locate and utilize condylar rotational centers or hinge-axes, the dental graduate demonstrates daily how unsatisfactory is the articulation of natural or artificial teeth.

Problem in Kinematics

Articulation is strictly a problem in kinematics which is the science and control of bodies in motion. The instant the human jaw starts to open, it engages in kinematics; it continues to engage in kinematics until it has returned to complete and immobile occlusion. Consequently, the location of the patient's kinematic control centers, his hinge-axes, becomes paramount. The following explanation refutes a possible contention that all this can be and is being done with centric.

Definition of Centric—Centric is a single, static *position*; the position of complete and immobile occlusion mentioned. Centric is even officially defined as a position. Being a position, there is no possible way to find or prove its location in the head. If its location could be proved, there would be no possible way to transfer it to or utilize it in an articulator.

Kinematic Measurements cannot be Made From a Static Position—Centric has no ability to control, or even direct, the slightest movement of the jaw.

Destroyed by Movement—Let the jaw move ever so little and centric, far from showing itself to be a control, is destroyed. This will be clear from the universal and correct understanding that centric is lost whenever the technician opens or closes the bite, either deliberately or by mistake.

Lateral Movements Unimportant in Articulation

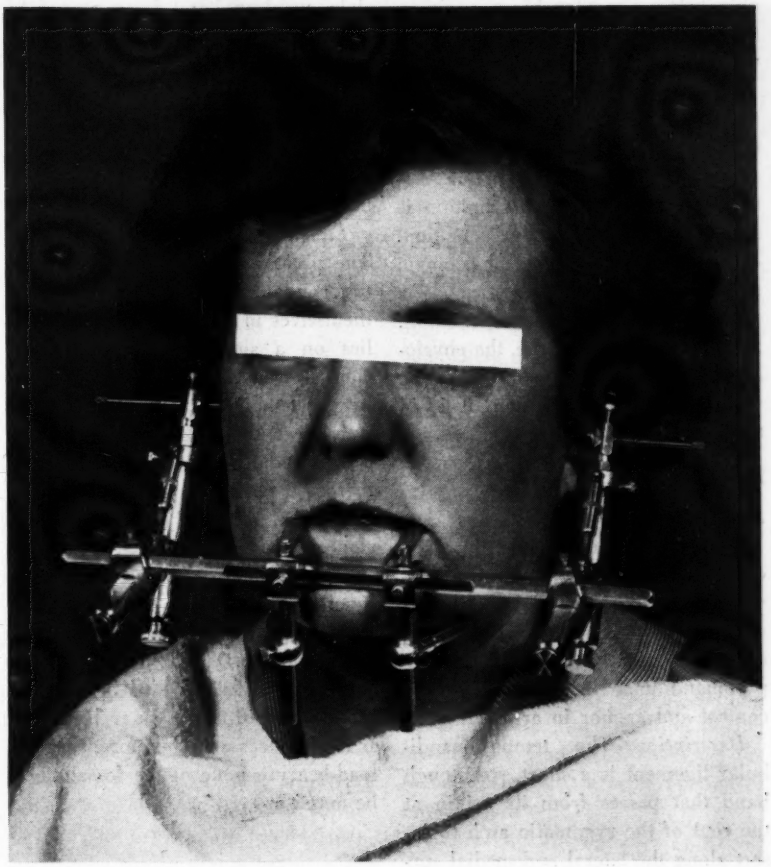
Should it be argued that the jaw kinematics are being captured by lateral motions, the answer is that laterals have no importance, nor do they play any part, in articulation. Laterals are completely outside function range. No further proof is needed than the evidence offered by a gothic arch tracing. Such a tracing indicates the most retruded position of the mandible in which laterals can be made at the given vertical. Nevertheless, *the instant the patient opens his mouth (which he must do to engage in function) the mandible drops behind that most retruded position.* As he engages in functional closure, the mandible moves forward to (but not beyond) that position.

Fields of Lateral Motion and Function Separate

The gothic arch tracing indicates the rearward terminal of all lateral movements and the forward terminal of all functional movements at every functional vertical opening. The fields of lateral motion and of function are thus divided from each other. Consequently, laterals can play no part in functional articulation. An occasional patient may be able to move in lateral with reasonable freedom but this is a nonfunctional movement and, as a rule, indicates a malarticulation.

Hinge-Axis a Theoretical Center

Based on the premise that a hinge-axis does not exist or that the jaw does not operate on hinge-axes, most of the slight interest in the hinge-bow and the hinge-axes is negative. It is important to understand that a hinge-axis is entirely theoretical. It is defined as "A theoretical, axal center of rotation that pierces a condyle transversely." Nevertheless, although theoretical, everything in the universe that moves with rotary motion *must* revolve upon this same imaginary axis —from the wheel of the slow oxcart to the vast earth whirling in space at a thousand miles an hour.



1. ***Hinge-bow clamped to patient's mandible. Condyle pins point along hinge-axes. Note asymmetry of axes. See text for explanation.***
(Courtesy Transograph Inc., Minneapolis, Minnesota)

Jaw Revolves Upon Hinge-Axes—The hinge-axis is the base for all measurements by which revolving machinery is designed and constructed. Without it not a wheel could turn accurately. The earth would lose its gyroscopic stability and would go crashing wildly into the outer spaces, a menace to the universe. Since the jaw engages in rotary motion while opening and closing it is manifest that it, too, must revolve upon hinge-axes.

Hinge-bow an Essential Articulating Tool—That a certain amount of translational motion may be combined with the rotational opening and closing does not alter the situation. The rotary component must still revolve upon hinge axes. The hinge-bow, in locating and marking the head hinge-axes, thus establishes itself as an essential articulating tool.

Device Answers Other Questions—By watching the behavior of the condyle pins, it is possible to evaluate many concepts of jaw movements and many current theories.

Physiologic Rest Position Disclaimed—The negative value of the physiologic rest position may be determined easily. It is only necessary to watch condyle pin motion as the jaw relaxes from hinge position to rest position. Almost without exception, the condyle pins drop consider-

ably below condylar hinge position. In many cases, the pins fall backward as well as downward.

Physiologic Rest Position Without Value in Articulation—It is clear that motion of the condyles from rest position to so-called centric is not rotational as is claimed. This motion is almost pure translational motion. This indicates that the physiologic rest position is without value as a starting point or basis in articulation. Even if this were not true, the physiologic rest position would still be valueless. Being a position, it is in the same category as centric.

Temporomandibular Ligament

The fact that the condyle pins drop downward and in many cases backward when the jaw is relaxed to the physiologic rest position indicates another important fact: that the temporomandibular ligament is a vital control and anchor in articulation.

Description—The temporomandibular ligament is a short, steel-tough band that passes from its origin at the root of the zygomatic arch to insert along the lateral and medial surface of the neck and head of the condyle. It slants backward and downward at an agle of 45 degrees, approximately. Any force, therefore, that tries to push or pull the jaw back will cause the temporomandibular ligament to swing the condyle upward and sometimes forward.

Guides and Anchors the Condyle—In all cases, as the condyle pins reveal, the ligament guides the condyle up to and against the anterior slope of the mandibular fossa and anchors it there in its fulcral or hinge position while the powerful masseter and internal pterygoid muscles turn on the masticating power. With the release of power closure, the condyles again drop away, as previously stated.

Theory of Fulcral Point—The fossal bone, against which the condyle sets itself in power closure is known to be exceedingly thin and the avascular tissue, both on the meniscus and the fossa is, likewise, almost membraneous. The contention is, therefore, that the contact between condyle, meniscus, and fossa cannot be the fulcral point of the jaw because of the impossibility of such a fragile structure serving as the fulcrum for the heavy forces expended in mastication. The revelations of the hinge-bow and the condyle pins provide the answer.

Ligament Under Heavy Tension—The pivotal spot on the fossa where the condyle and its meniscus brace themselves in power and final closure lies on a slanting surface. As the condyle is guided to the pivotal spot by the temporomandibular ligament, it is clear that the ligament rapidly comes under heavy tension which is increased by the slanting surface bearing of the condyle on the fossal slope.

Heavy Tension Continued—The ligament continues to bear this heavy tension throughout the entire act of power closure. This being so, a large share of the fulcral load is assumed by the temporomandibular ligament. It is not necessary, therefore, that the load-bearing bone of the fossal slope be massive.

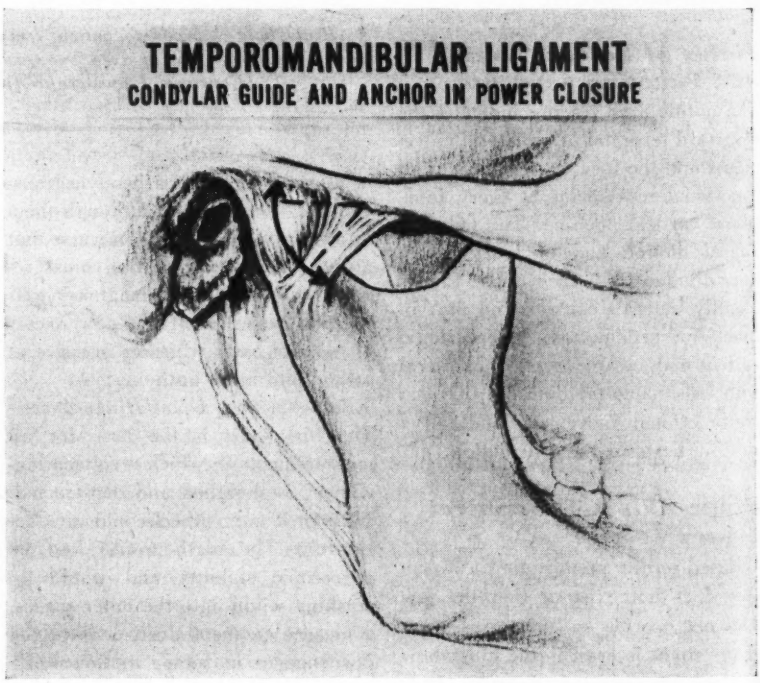
Protector of the Auditory Apparatus—Theories on deafness from incorrect vertical dimension become doubtful when it is realized that the temporomandibular ligament ensures that no force can drive the condyle backward into the depth of the fossa. The greater the force retruding the mandible, the greater the tendency of the condyle to move forward.

Movement Not a Paradox: Despite the fact that they are parts of the same bone unit, movement of the condyles upward and even forward when the mandible moves backward need not be considered a paradox.

Condyles Complete Normal Circular Course: When the mandibular angle and the temporomandibular ligament are studied it will be seen that an upward or forward movement of the condyles under pressure from the backward movement of the mandible completes a normal circular course.

Rotational Center of Jaw

The hinge-bow settles another long-contested question; namely, the location of the rotational center of the



2. ***In power closure or enforced retrusion the temporomandibular ligament swings the condyle to, and anchors it against, fossal slope. Arrow indicates guidance path.***

jaw as a whole. From the early statements of Gysi to the present time, dental physiologists have contended that this center lies somewhere on the ramus between the condyles and the mandibular angle.

Fulcrum Required—This theory would be questionable under any circumstances for it would leave the jaw without a fulcrum, something that, being a lever, it must have.

Two Rotational Centers—Condyle pin action dissolves the contention and shows that there are actually two rotational centers, one for translational motion and one for rotary motion.

Fulcrum Provided—The rotational center upon which the jaw operates during translational motion (motion during which the condyles slide along the anterior slope of the mandibular fossa) lies in the insertion of the masseter and internal pterygoid muscles where they cradle the mandibular angle. This provides a fulcrum for the powerful temporal muscle against which its posterior fibers can exert leverage to draw the condyle up and back.

Rotational Center Shifts—As the condyle approaches its fulcral or hinge position, it encounters the guidance of the temperomandibular ligament and is swung up and forward to rest against the anterior fossal slope. Instantly, the rotational center of the jaw shifts from the mandibular angle to the condyle.

Final Closure—The condyle now pivots against its fulcral position on the fossal slope and, at the same time, revolves around its own hinge-axis as the masseter, internal pterygoid, and the vertical fibers of the temporal muscles contract in final power closure.

Centric Relation a Variable

The hinge-bow supplies additional information; if the condyle pin is adjusted so as to be off its rotational or hinge-axis spot, it will begin reciprocating along short arcs as the jaw opens and closes. The pin is now imitating the changes that take place in condylar centric relations as the jaw moves. Centric relation, therefore, is a variable and cannot be considered a "terminal hinge position," as sometimes claimed, for it is, obviously, *not a position.*

Without Value in Articulation—Because centric relation is a moving point on a moving body, it cannot be used as a kinematic control center. Hence, like centric, it has no value in articulation.

Hinge-Axes Kinematic Controls—It is frequently stated that the difference between the centric-centric relation concept and the hinge-axes concept is one of terminology only. In answer it is repeated that hinge-axes are kinematic controls, not positions, while centric is just one position among an infinite number of *jaw positions which are controlled by the hinge-axes.*

Not Affected by Jaw Movements—When the jaw opens or closes with consequent change in vertical dimension, the hinge-axes are not affected but centric is lost at once. The same applies to centric relation which is completely disrupted.

Summary

The hinge-bow has been shown to be essential to articulation, providing the following information:

1. Locates the kinematic control centers that guide jaw movements.
2. Reveals the error in concepts of centric, centric relation, and the physiologic rest position.
3. Establishes the temporomandibular ligament as an anchor holding the condyle in hinge position during mastication loads and relieving the fossal structure of a large portion of fulcral load.
4. Makes questionable previous theories that deafness is due to excessive bite opening or closing.
5. Demonstrates that there are two independent rotational centers in the jaw; one for rotational and one for translational jaw movemets.

104 *Garfield Avenue.*

Kidney Function and Chronic Fluorosis

In studies on endemic fluorosis in man due to high fluorine content of the drinking water, attention has been centered on the teeth and bone changes, but some observers also found impaired kidney function. Bond and Murray[1] describe their own investigations on the effects of the intake of small amounts of sodium fluoride on kidney structure and function in rats. They hoped to find some means of testing for the toxic effects of fluorine in human beings and of demonstrating the existence of a fluorine hazard before severe intoxication had resulted in disability and skeletal lesions. The studies extended over a number of years and involved a large number of control and experimental rats. Rats given small amounts of NaF in the diet showed, in addition to the well-known skeletal and dental lesions, marked polydipsia and polyuria. The urine of these rats was of low specific gravity. There was slight glycosuria after 18 hours of fasting with blood sugar level of 70 to 80 milligrams per 100 millimeters. Administration of glucose intraperitoneally produced definite glycosuria at blood sugar threshold. At autopsy the kidneys were dark, shrunken and nodulated. Demonstration of alkaline phosphatase showed that there were fibrotic lesions in the cortex, where the enzyme was almost absent owing to absence of functional tubular tissue. Histologic examination indicated that there was a vascular glomerular, and more obviously tubular degeneration leading finally to interstitial fibrosis. The fluoride-fed rats showed diminished growth, low body weights, and diminution of fat stores. Nitrogen metabolism was greater in the fluoride-fed rats than in the controls.

From Medical Literature Abstracts, *Journal of the American Medical Association* **150**:620-621 (Oct. 11) 1952.

[1]Bond, A. M., and Murray, M. M.: Kidney Function and Structure in Chronic Fluorosis, Br. J. Experimental Path., London, **33**:105-216 (April) 1952.

GENERAL ANALGESIA *in Dentistry*

BRUCE L. DOUGLAS, A.B., D.D.S., West Hempstead, L. I., N. Y.

DIGEST

This article presents a survey of the subject of analgesia in general with special reference to its use in the dental office. Preparatory measures, methods of administration, and the specific procedures to be used for the most successful results in applying analgesia in the dental office are discussed in detail.

General Considerations

General analgesia is a state of partial or total insensibility to pain with the maintenance of consciousness. As commonly used in dentistry, analgesia abolishes pain through the use of inhalation anesthetic agents in highly oxygenated mixtures. The agent most widely and successfully used is nitrous oxide.

Asphyxial Possibilities Eliminated—Because of the high oxygen concentration of the analgesic mixture, the asphyxial dangers of nitrous oxide-oxygen anesthesia are eliminated. Widespread use of the drug is therefore essentially harmless in experienced hands.

Psychologic Preparation of Patient—In discussing analgesia with the patient, the agent should never be referred to as "gas." Patients may recall traumatic experiences with ether anesthesia as children and frequently may still hear of similar episodes. As the administration of general anesthetics is often accompanied by extreme apprehension, the subject should be introduced as a functionally important part of dental treatment and the patient should be impressed with the fact that consciousness and awareness are retained throughout the procedure.

Nature of Anesthetic Process

Research has been conducted extensively to acquire a deeper insight (1) into the physiologic changes accompanying nitrous oxide anesthesia, and (2) into the nature of the change in nervous activity with the addition of an anesthetic agent to the blood stream and subsequently to the brain tissues. The anesthetic substance must have a completely reversible effect: its acceptance by the body is therefore extremely adaptive, but the actual process of anesthetic action is still highly theoretic.

Nitrous Oxide—The only inorganic anesthetic agent, nitrous oxide, replaces nitrogen and is highly soluble in the blood stream. Possessing an affinity for hemoglobin, it tends to crowd out oxygen molecules rather than to replace them.[1] A degree of systemic hypoxia is established and the brain cells, easily susceptible to oxygen lack because of their complex lipoid structure, are affected first. Other necessary organic functions are maintained, but diminished.

Anesthetic Properties Inherent—The fact that nitrous oxide has anesthetic properties of its own in addition to its indirect hypoxemic effects has been established but has not been adequately explained.[2]

Signs of Anesthesia Vary—The anesthetist must be familiar with the signs which indicate the various depths of anesthesia. The percentages of the anesthetic agent and the oxygen must be altered to maintain the desired level of anesthesia. Analgesia, the first state of narcosis, precedes the anesthetic state which occasionally follows a short period of excitement. One of the main advantages of analgesia is that consciousness is maintained, making patient cooperation possible.

Loss of Consciousness May Have Traumatic Effect—In the presence of extreme physical weakness at the time of administration, or if the analgesic procedure is performed in the evening, the effect of the agent may actually induce normal sleep. Should this occur an explanation should be given to the patient who might think he was overcome by the nitrous oxide.

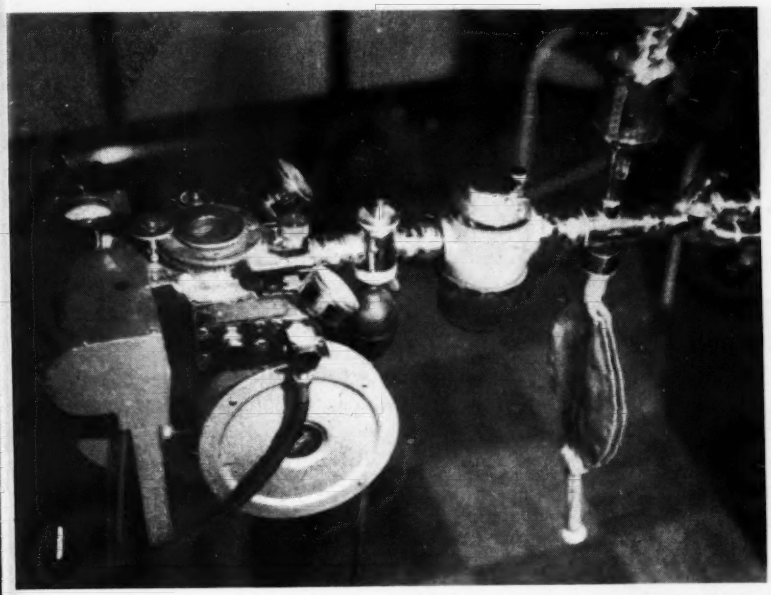
To Determine Depth of Analgesia

Although analgesia is only a step in the direction of anesthesia, there are characteristic signs denoting depth of analgesia. Because administration is through the nose, speech is possible. Talking should be minimized to avoid inhalation of atmospheric air. One or two word responses may be made to indicate the degree of analgesia. Irritating the patient with explorer points or other devices should be avoided.

Excitement Stage—Eye signs are

[1]Seldin, Harry M.: Practical Anesthesia for Dental and Oral Surgery, Philadelphia, Lea and Febiger, 1942.

[2]Goodman, L., and Gillman, A.: The Pharmacological Basis of Therapeutics, New York, The Masmillan Co., 1941.



1. ***The anesthetic machine utilized in the procedure described in this article is shown. The basic apparatus is a McKesson Nargraf machine and the adaptations have been made to order by the Foregger Company, New York.***

useless except in detecting apprehension or passage from the analgesic stage. Respirations should be slow and rhythmic. Irregularity in respiration may be an indication of hyperirritability or of depth. A practical knowledge of anesthesia is of great value to the operator as passage into the excitement stage or complete narcosis can be alarming to the inexperienced operator and can occur easily with the beginner.

Satisfactory State of Analgesia — The desired analgestic state may be determined in the following ways: (1) By instrumentation in the mouth, (2) by a prearranged signal from a previously narcotized patient, or (3) by dullness of response, characterized by sluggish reflexes and thick, guttural voice tone.

Analgesia in Dentistry

In apprehensive and neurotic patients and in children analgesia is especially valuable. Contrary to common belief, in the hands of an experienced operator, analgesia is useful in cardiac patients to avoid pain and excitement subsequent to surgery. Indiscriminate use of analgesia is unwarranted as it is of any drug.

Patient Preference Important — Some patients may object strongly to the use of an anesthetic agent, others may insist on an injection. The use of analgesia against the patient's will is poor psychology and will invariably lead to unsatisfactory results.

Analgesia in Children's Dentistry— The hazards of time consumption and tediousness involved in the dental treatment of children can be almost completely eliminated by the use of analgesia. The apprehension of a child is psychologically similar to that of an adult but the child's lack of maturity prevents compensation for his fear.

Preparing the Child: Before the child is seated in the chair and has an opportunity to develop an uncontrollably resistant attitude, he should be treated with patience and shown the office and the dental equipment including the analgesia machine. If permitted a few experimental inhalations at this time from the rubber cup or the little metal tube, the child may be better prepared to accept its use.

Analgesia Desirable: In child patients analgesia is actually more desirable than premedication with barbiturates. For this reason, children who may have been considered unmanageable and therefore in need of general anesthesia, with intelligent preparation for the procedure, may eventually enjoy dental treatment.

An Adjunct to Local Anesthesia— Analgesia is a useful adjunct (1) to local anesthesia in surgery, or (2) in situations where analgesia alone is not adequate for operative dentistry, even for an extremely loose pyorrhetic extraction, for example. Routine extractions, however, started with an initial dose of nitrous oxide-oxygen analgesia may be followed by a completely painless injection.

Local Anesthesia Extremely Important—Because the only reliable test for anesthesia is the surgical procedure itself, complete local anesthesia is of great importance in extractions. In such cases, after the injection of local anesthetic, adequate maintenance can be realized with as little as 15 per cent nitrous oxide and 85 per cent oxygen. This combination is particularly valuable in lengthy surgical procedures accompanied by trauma.

Wide Range of Applications—Analgesia eliminates the discomfort that accompanies subgingival curettage, occlusal equilibration, and in innumerable other dental procedures which may be painful or extremely uncomfortable.

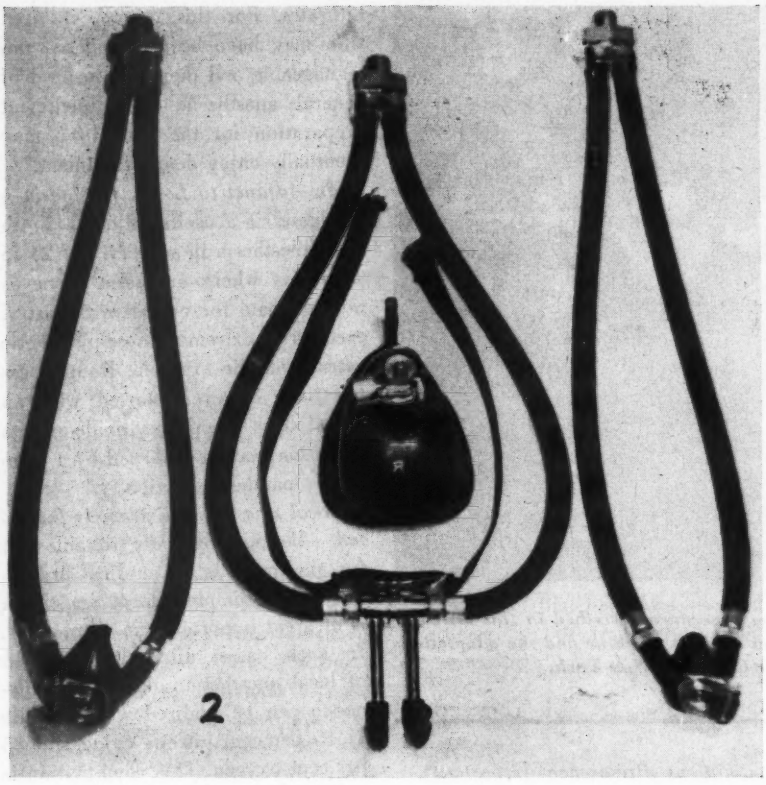
Equipment

The apparatus for efficient analgesia administration consists of a modern machine capable of supplying a high percentage of oxygen in the mixture.

Machine of Choice—The author's preference is the McKesson Nargraf with an attached rebreathing bag shown in Figure 1. This machine can be set at approximately any desired percentage of oxygen and has an easily adjustable pressure gauge.

Specific Reading is Approximate— There has been much debate as to the accuracy of the dials on any anesthesia machine. It is assumed therefore that a specific reading is only approximate.

Advantages of the Rebreathing Bag



2. ***Various face and nosepieces (McKesson) which can be utilized for dental office general analgesia.***

—The rebreathing bag is useful in the following ways: (1) it helps to eliminate some of the dead space in the system, (2) affords a means for observing respirations, (3) maintains the gases closer to body temperature, and (4) it aids, although slightly, in conserving gases.

Method of Administration

The degree of narcosis may be controlled by the patient, the operator, or an assistant. In the patient-control technique it is difficult to pass beyond the analgesia stage because loss of muscular control results in an inability to self-administer further amounts of nitrous oxide.

Administration by Technician Preferred—It has been the author's observation that the patient is more at ease and confident if the analgesia is administered by the dentist or a capable assistant.

Patient Reassurance a Necessity—Patients exhibiting psychologic uncertainties about a loss of control or consciousness, or patients who show signs of apprehension during the initial induction should be constantly reassured that there is nothing to fear. They should be told that if they wish they are free to inhale air through their mouths if they feel uncomfortably deep in analgesia. These directions should be reserved for only a few patients, however. In general, patients should be instructed to concentrate on breathing through their noses. This will become automatic if there is no nasal or upper respiratory obstruction.

Comment — The dentist utilizing analgesia in practice should experience the effects of analgesia himself before explaining the technique to a patient. Personal experience with analgesic procedure will convince the dentist of its efficacy and enable him to discuss the subject with a broader understanding.

Sensations in Induction — As the patient inhales nitrous oxide there is (1) an initial tingling sensation, followed by a feeling of warmth first in the extremities and then through the rest of the body, (2) a feeling of well-being and cerebral stimulation resulting in rapid, often profound thoughts, (3) droning, pounding, or buzzing noises, and (4) retention of touch and pressure sense with an abolition of terminal nerve pain.

Procedure

1. If the McKesson nosepiece is used, the patient is instructed to hold it tightly against his face. This is to avoid inflicting unnecessary discomfort to the patient.

2. With the dial on 100 per cent oxygen, the dial is slowly moved, permitting more and more nitrous oxide to enter the mixture.

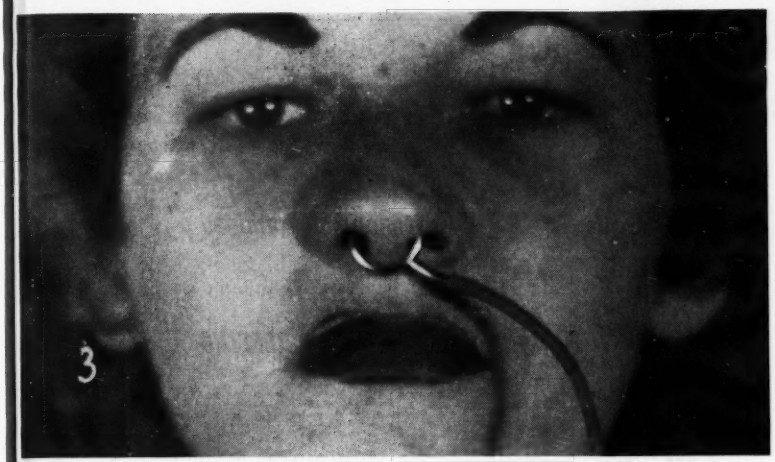
3. The exhaling valve is opened completely and a minimum of pressure utilized (2 to 3 millimeters of mercury).

4. As relaxation, determined by slow rhythmic breathing, is observed, the patient's hand is gently moved from the mask which is tightened into place. The mask will be well-tolerated and automatic nasal breathing will be maintained if there is no respiratory block or the patient is not a confirmed mouth breather.

5. Reactions to nitrous oxide vary widely so that no rule can be set for administering gas and oxygen at specific percentages. Amounts must be estimated for each patient.

Premedication Rarely Indicated — The procedure described has few contraindications and premedication in ambulatory dental patients is rarely necessary. Analgesia may be maintained for an indefinite period of time. Occasional postanalgesia nausea may be counteracted (1) by curtailing the intake of food for three hours preoperatively, or (2) by premedication with dramamine hydrochloride. A steady level should be maintained for the convenience of the operator and comfort of the patient.

Aids in Successful Technique—(1) In operative dentistry a saliva ejector should be held in the mouth throughout the procedure. (2) Spraying water



3. ***Demonstrating the use of the Nasette for general analgesia in dentistry.***

4. ***Nasette in place for analgesia administration.***

on the field should be done with caution to avoid irritation of the pharynx. The use of the rubber dam may be cumbersome. (3) A mouth prop made of rubber and placed on the opposite side will frequently help avoid postoperative temporomandibular fatigue. (4) An efficient suction apparatus is a necessity in surgical procedures and is also often helpful in operative dentistry.

Discussion

One of the disadvantages of the technique described is the use of the nosepiece and heavy rubber tubing tightly hugging the skull and aural region which interferes with operative procedure in the maxillary mucolabial area, particularly in the completion of apicoectomies or cyst enucleation. A head strap equipped with nasal tubes designed for nasal intubation has proved to be too heavy and uncomfortable.

Appliance Devised—The Nasette® shown in Figures 3 and 4 is suggested as a possible substitute for the cumbersome equipment now in use. Much simpler in design, lighter, and less annoying to the patient, this appliance may eventually be perfected to replace the nosepiece.

Improvements Developed — After clinical trial in which only nitrous oxide was flowed through the tube, it was found that the appliance does not allow enough nitrous oxide to reach the patient; the thin tubing and small lumen offer too much resistance to the pressure of the gases and there is too much space for inhalation of atmospheric gases through the nose. A new and more efficient device is in the process of development.

Conclusion

Nitrous oxide analgesia is a practicable and methodic means of making dental visits pleasant experiences for the patient. Ease of manipulation, simplicity of administration, and the feasibility of patient cooperation recommend it for wider use in operative dentistry and oral surgery.

720 *Cornwall Avenue.*

Author's Note: The Nasette illustrated was manufactured by the Southern Oxygen Company, Washington, D.C.

The opinions or assertions included in this article represent those of the author and do not constitute an endorsement by the Navy Department or the naval service at large.

DENTAL FOCAL INFECTION

Part Three

LOUIS I. GROSSMAN, D.D.S.
Philadelphia

DIGEST

This is the last in a series of three articles reporting the results of an extensive investigation of the relation of dental foci of infection and various diseases. This section again points out the tenuous relationship regarding systemic conditions obtaining in the presence of pulpless teeth, or "infected" tonsils.

Periapical Foci of Infection and Chorea, Rheumatism, and Heart Disease

More than 800 men and women of college age (Fig. 16) were examined by Arnett and Ennis,[17] both medically and dentally. It was found that no relationship existed between the presence of periapical foci of infection and chorea, rheumatism, and heart disease.

[17]Arnett, J. H., and Ennis, L. M.: Am. J. M. Sc. **185**:777 (June) 1933.

Of **883** students examined

20% had CHRONIC RAREFYING OSTEITIS

not associated with

CHOREA
RHEUMATISM
HEART DISEASE

(Arnett & Ennis)

16

76% OF 2000 PATIENTS

with

ACUTE ABSCESSES
CHRONIC ABSCESSES
GRANULOMAS

remained or became clinically and roentgenologically negative after a **16** year check-up.

(University of Illinois)

17

Sixteen-year Observation of Treated Pulpless Teeth

Useful evidence is furnished by the fact that when treated pulpless teeth are observed for a reasonable length of time (Fig. 17), it is shown that they are likely to remain roentgenologically negative. A long term check-up made by the University of Illinois College of Dentistry revealed that 76 per cent of patients who had had acute abscesses, chronic abscesses, or granulomas remained or became clinically and roentgenologically negative.

Histologic Examination of Pulpless Teeth

Histologic evidence has generally been in favor of the retention of pulpless teeth. Skillen[18] examined by histologic means 250 pulpless roentgenologically negative teeth (Fig. 18). These were root canal-treated teeth, only 117 of which were properly filled. Despite poor canal fillings only 6 teeth showed any evidence of infection.

Changes Following Root Canal Therapy

Hatton[19] found upon histologic examination that the changes following root canal treatment are similar to the changes following bone fracture (Fig. 19). Resorption and removal of the damaged tissue, either in the pulp canal or in the periapical bone, is followed by replacement of lost tissue by osteoid cementum and/or of bone.

Conclusions Concerning Pulpless Teeth

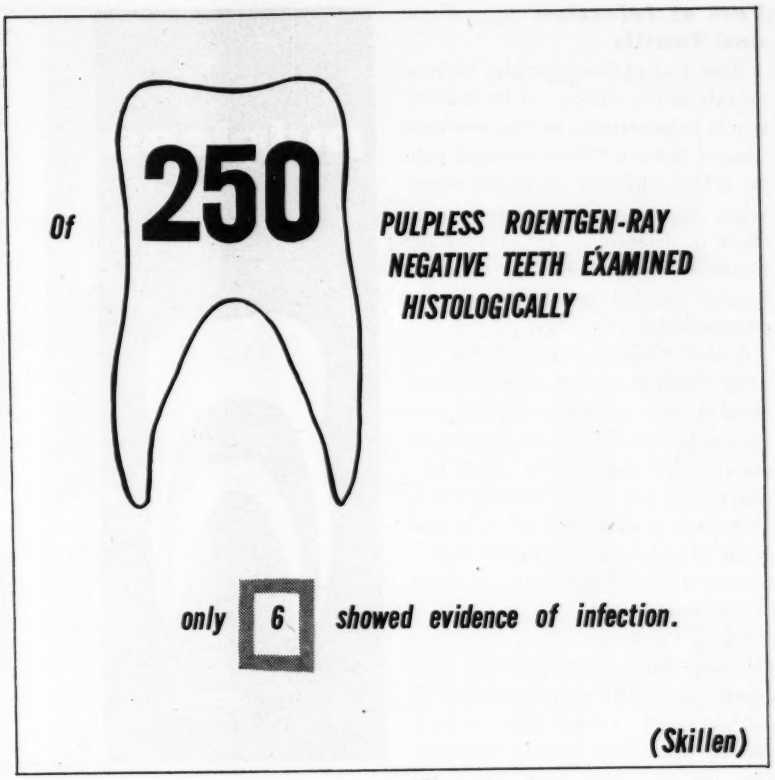
As shown in Figure 20, the evidence cited leads to the following conclusions:

(1) Repair often follows root canal treatment.

(2) Pulpless teeth may be safely retained without endangering the health of the patient.

[18] Skillen, W. G.: J.A.D.A. **13**:291 (Aug.) 1926.

[19] Hatton, E. H.: J.A.D.A. **18**:1502 (Aug.) 1931.



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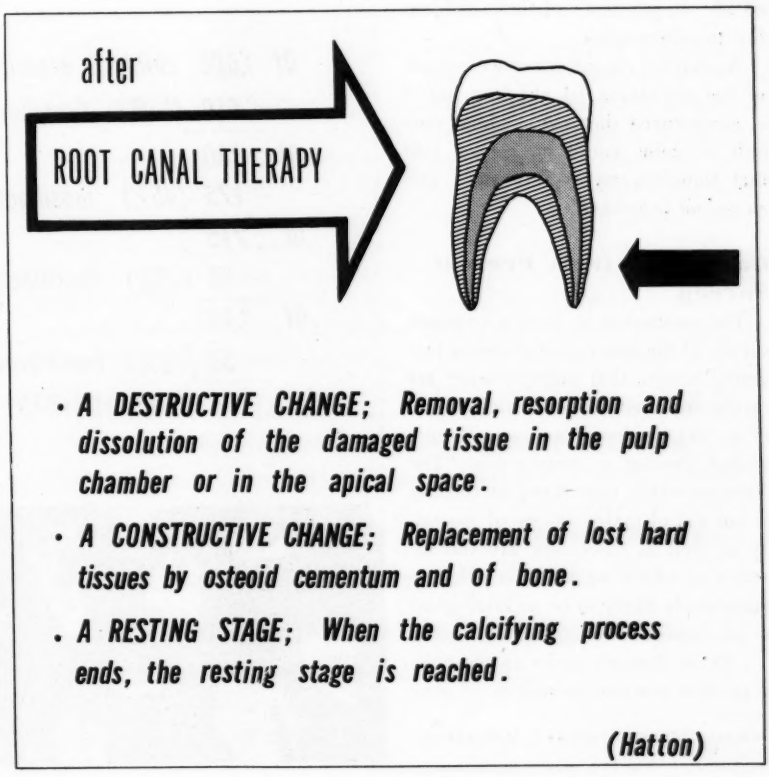

after
ROOT CANAL THERAPY
• A DESTRUCTIVE CHANGE; Removal, resorption and dissolution of the damaged tissue in the pulp chamber or in the apical space.
• A CONSTRUCTIVE CHANGE; Replacement of lost hard tissues by osteoid cementum and of bone.
• A RESTING STAGE; When the calcifying process ends, the resting stage is reached.
(Hatton)

19

Foci of Infection and Tonsils

That foci of infection play little or no role in the etiology of focal infection is substantiated by the investigations of Bakwin.[20] One thousand public school children of about eleven years of age were examined in an effort to determine (1) whether the tonsils were infected, and (2) if infected, whether tonsillectomy was recommended (Fig. 21).

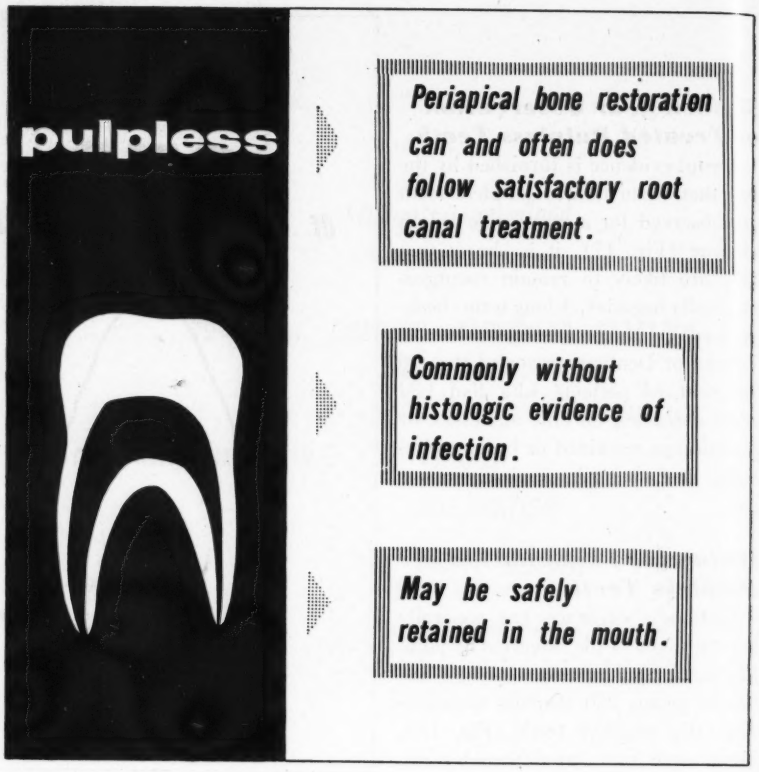
School Children Studied—Of the 1,000 children studied, it was recommended that tonsillectomy be performed in 610 or 61 per cent. The remaining 390 children for whom tonsillectomy was not recommended, were then re-examined by a second group of physicians who recommended that 175 (45 per cent) of these be tonsillectomized.

Study Continued—The remaining 215 were then re-examined by still another group of physicians and 98 (46 per cent) of these children were told to have their tonsils removed. This left 117 who were again re-examined by an entirely different group of physicians who recommended 53 (46 per cent) of these children for tonsillectomies.

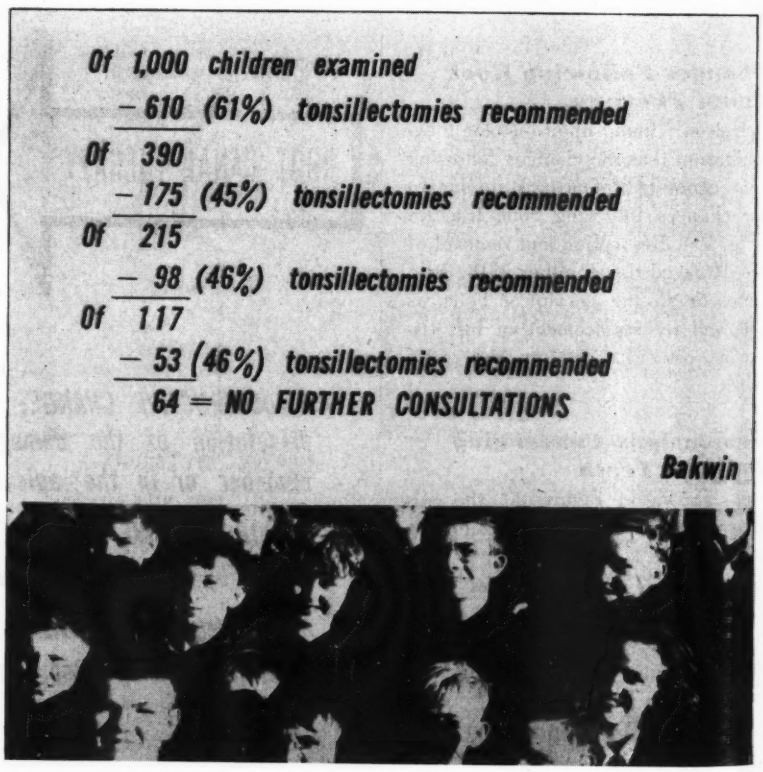
No further consultations were made of the remaining 64 children but it is conjectured that again about one-half of these would have been told that tonsillectomy is indicated; and so on, *ad infinitum*.

Conclusion from Present Survey

The conclusion is, from a complete survey of the obtainable evidence presented herein, that pulpless teeth are rarely involved in systemic disease (Fig. 22). A few years ago, Ryan[21] quoted Dunbar as stating that "The illnesses which now stand at the top of our list of major causes of mortality as well as morbidity are the illnesses in which we know emotion is particularly likely to be an etiological or an important complicating factor . . . These illnesses make up the bulk of general practice as well as of gen-


pulpless
Periapical bone restoration can and often does follow satisfactory root canal treatment.
Commonly without histologic evidence of infection.
May be safely retained in the mouth.

20



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[20]Bakwin, H.: New England J. Med. **232**:691 (June) 1945.
[21]Ryan, E. J.: The Principles of Psychosomatic Medicine in Dental Practice, Harvard Dent. Alumni Bull. (Nov.) 1945.

eral hospital admissions." Ryan then continued to say that "Immediately comes to mind a list of common conditions of proved psychogenic origin: peptic ulcer, hypertension, coronary disease, bronchial asthma, mucous colitis, and certain arthritic disturbances."

University of Pennsylvania School of Dentistry.

Crystalline Vitamin B_{12} in Neurologic Disturbances

WILLIAM S. FIELDS, M.D., and HEBBEL E. HOFF, M.D., Houston, Texas

Trigeminal Neuralgia

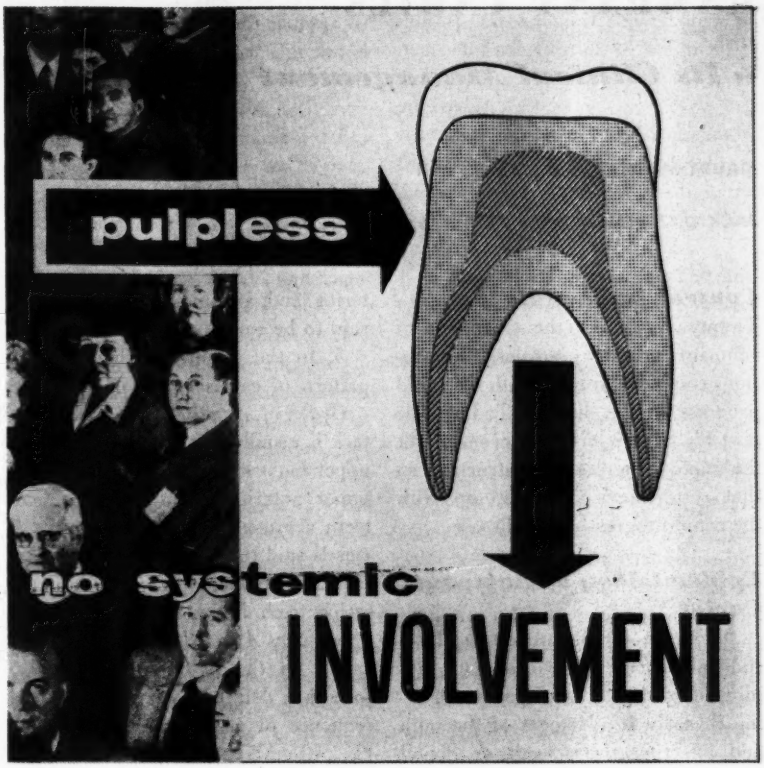
In the past, occasional patients have responded satisfactorily to medical therapy of various kinds (e.g., ferrous carbonate, thiamine, niacin), but the majority have ultimately required surgical intervention in the form of alcohol nerve block or nerve section. Even these latter procedures, most particularly alcohol block, have given only temporary relief until the continuity of the nerve has been restored by regeneration. Root section or medullary tractotomy will produce permanent relief, but the surgery is formidable and destructive, leaving permanent and sometimes disturbing anesthesia.

With large doses of crystalline vitamine B_{12} intramuscularly, approximately 85 per cent of 200 patients with trigeminal neuralgia obtained substantial relief from acute paroxysmal pain. The majority of these, however, reported an uncomfortable burning residual in the distribution of the affected nerve which was usually alleviated by continuance of treatment for 10 to 14 days. Patients who have been treated previously by alcohol injection of the affected nerve may take longer to obtain a satisfactory response, but this is not invariable.

Atypical Face Pain

In the category of atypical face pain are included many variable and bizarre forms of pain in the face which cannot be accepted as characteristic of typical trigeminal neuralgia. In most of these cases there appears to be a large psychogenic element, responsible for either the precipitation of the syndrome or its perpetuation. In these cases, vitamin B_{12} therapy has had limited success.

From *Merck Report* **61**:5 (Oct.) 1952.



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RAMPANT CARIES

– *Its Clinical Management*

MAURY MASSLER, D.D.S., M.S., and

JACK D. ZWEMER, D.D.S., Chicago

Control is Possible

Twenty years ago the treatment of rampant caries was hopeless. Restorations could not keep up with the rapid progress of the disease. Today it is possible to slow down or even to halt the rapid progress of destruction so that restorations can keep up with the rapid progress of the disease.

Epidemiology of Rampant Caries

Definition—Rampant caries is a suddenly appearing, widespread, rapidly burrowing type of caries resulting in early involvement of the pulp and affecting those teeth or dental surfaces usually regarded as immune to ordinary decay.

Rampant caries often occurs in relatively clean mouths and can therefore be distinguished from the more commonly encountered neglected caries by the amount of materia alba and debris present in the latter. The most distinguishing character of rampant caries is the fact that tooth surfaces ordinarily immune to decay (proximal surfaces of the lower anterior teeth; cervical areas of the anterior teeth) are affected.

Teeth Affected—1. In the primary dentition the usual sequence of the caries attack is the following: (1) lower molars, (2) upper molars, (3) upper anteriors, and (4) (seldom) the lower anteriors.

2. In simple, ordinary caries the molars are attacked occlusally and proximally.

3. In children who are highly susceptible to decay and in whom the caries is permitted to become extensive, the upper anterior teeth may become involved proximally.

4. The lower anterior teeth are relatively immune to caries and are seldom affected. When the lower anterior teeth are involved the disease is said to be rampant.

5. In the permanent dentition the pattern of caries attack is similar.

Order of Attack—The order of attack is usually (1) lower molars, (2) upper molars, (3) bicuspids, and (4) upper anteriors. The lower anterior teeth are usually caries immune. Caries is said to be rampant in the permanent dentition when the lower anterior teeth become involved.

Surfaces Affected—The progress of caries on the individual tooth also follows a definite pattern. The usual sequence of attack is the following: (1) pits and fissures (occlusal, buccal, palatal), (2) proximal (contact) areas, and (3) cervical areas. Under ordinary circumstances the ratio of pit and fissure caries to proximal and cervical caries is 8:4:1.

The cervical areas of the teeth may be attacked with greater violence than are the occlusal surfaces. The ratio of proximal to fissure decay may also become reversed in rampant caries.

Tissues Affected—Caries of the enamel and caries of the dentin are not necessarily the same. As the caries progresses through the enamel and dentin, differences in structure between these tissues change somewhat the character of the caries progress.

Rampant Enamel Caries: Caries which attacks the enamel with relatively little destruction of the dentin is characterized by extensive decalcification of the enamel, principally on the gingival third of the tooth spreading toward the crown of enamel.

Rampant Dentin Caries: Caries of the dentin is characterized in the early stages by only a relatively small opening in the enamel but with rapid and extensive spread into the dentin.

Acute Phase: The dentin is usually soft, brown, and necrotic. Penetration is extremely rapid. In the more slowly progressing ordinary dentin caries the decayed dentin is dark brown and leathery or crumbly. In rampant caries the underlying sound dentin is sensitive when the decay is removed, probably because the caries has progressed so rapidly that there has been little opportunity for normal protective mechanisms, such as secondary dentin formation or sclerotic dentin, to perform their role in pulp protection.

Incidence and Prevalence—Caries does not progress at a uniform rate throughout life. Periods of acute susceptibility to the disease alternate with periods of relative immunity. Acute exacerbations in caries activity are commonly seen in almost all persons at 4 to 8 years of age and at 11 to 18 years of age. The individual susceptibility of the person determines the *degree* and the *extent* of the damage but all are liable to attacks during these periods of exacerbation.

Prevalence—It has been shown that rampant caries was present in 5.0 per cent of 2,842 children, ages 14 to 17 years. Girls were more often affected by rampant caries than boys. Rampant caries had a strong predilection for the ectomorphic (slender) type of person. Of the 143 cases of rampant caries, 105 were thin, slender (ectomorphs) children; 34 were muscular (mesomorphs); and only 4 were stocky or fat children (endomorphs).

Treatment of Rampant Caries

Plan of Treatment—Unless a definite plan of treatment is carefully outlined in advance, the treatment of the rampant caries case becomes tedious and unproductive. If the patient knows in advance the extent of the treatment and the dentist can show progress as the treatment unfolds, the patient is less likely to become discouraged and lose interest.

Length of Treatment—The treatment period for rampant caries should not exceed *ten* weeks. This period is divided into two phases: (1) The control phase (lasting six weeks) is devoted to arresting the progress of the

carious lesions already present and to eradicating the cause of the condition. (2) The second phase (lasting four weeks) involves the restoration of the decayed areas and prevention of the initiation of new lesions on the enamel surface.

Period of Control

A period of active caries control is instituted at the outset. This will require one half-hour visit each week during the first six weeks. Three methods of caries control can be used in the treatment of rampant caries: (1) sugar control, (2) oral hygiene, and (3) removal of active decay.

Sugar Control—During the past decade it has been shown, time and again, that in caries active persons the reduction of *excessive* sugar intake has resulted in a demonstrable slowing down or even arrest in the caries progress. In the last war caries attack rates showed a marked reduction which directly paralleled the availability of refined sugars to the war-torn areas of Europe.

Recent reports indicate that with the advent of increased amounts of sugars to these countries, the caries attack rate is steadily increasing in proportion to the sugar consumption.

Sugar Consumption in the United States—The average American enjoys what is popularly known as a "sweet tooth" but which is in reality a perverted sugar appetite. It has been computed that the average person living in the United States needs to consume approximately 40 pounds of sugar per year (10 teaspoonsful per day) in order to satisfy his caloric requirements. Starches and fats should contribute a significant proportion to the caloric intake of each person.

Excess Consumption: Recent reports from the Department of Agriculture indicate that the average person in the United States consumed 93 pounds of sugar in 1948. This constitutes an excess of approximately 53 pounds of sugar per person over his nutritional and caloric requirements. The average child thus consumes his own weight in sugar every year.

It is primarily this excessive sugar intake which causes the damage seen in caries-rampant mouths. The 53 pounds of excess sugar cannot be consumed at mealtimes but is ingested in the form of candies, cakes, and soft drinks *between meals.*

Effects of Excessive Sugar Intake: Between-meal sugars are an important contributory factor, especially in children, toward the loss of appetite with the result that other necessary foods, such as meats and vegetables, are not eaten at mealtimes. The common complaint by parents that their children have no appetite at mealtimes may often be traced directly to the enormous consumption of refined sugars (candies and cookies) before mealtime.

Malnutrition: Excessive sugar consumption predisposes to malnutrition because it literally pushes out from the diet the necesssary proteins, minerals, and fats. When between-meal sweets are removed frm their diets, the children's appetites increase greatly and their nutrition is markedly improved.

Sugar Ingestion Habits and Caries Attack Rates—It is not so much the total quantity of sugars consumed during one day that is important but the *number of times* sugar is ingested. Twenty teaspoonsful of sugar consumed at one sitting, for example, during the course of a meal, are much less injurious to the teeth than 5 teaspoonfuls consumed four times a day in the form of between meal sweets. The latter produces four carious attacks; the former, only one.

Educational Program

The success of the sugar control program depends on the active cooperation of the patient. The relationship of fermentable carbohydrates to caries activity should be explained to him in simple terms. Use a simple descriptive phrase such as "The sugars change to acids which decay the teeth."

Use of Diet Sheet—In dealing with children both the parent and child must understand the diet. Let them learn by filling out a complete diet sheet for one week. Encourage them to help in revising the diet. Demanding that the patient immediately stop eating all sugars will not produce as good cooperation as gradual elimination of between-meal sugars, item by item, and substitution of a non-cariogenic snack such as potato chips or popcorn.

Indoctrination of the Patient—1. Fifteen-minute wire recordings explaining the role of sugar in caries are excellent for patient education and save a great deal of time.

2. Printed or mimeographed material is also effective but the material must be discussed with the patient first or he will not read it.

3. If, after the patient thoroughly understands what he should do, he still does not cooperate, dismiss him.

Treatment of Uncooperative Patients Futile—Inevitably, the patient will blame the dentist (and not himself) when recurrent carious lesions appear. Non-cooperative patients are vociferous in their complaints about the holes in their teeth and about their dentist. Such patients may injure a hard-won reputation. Non-cooperative patients quite often change their attitude when confronted with dismissal and frequently become extremely cooperative if given a second chance.

Judging Caries Activity—There are two reliable methods of testing the efficacy of the caries control program: (1) The use of caries activity tests such as the Lactobacillus acidophilus count or the Snyder test. (2) Change in the physical character of the carious dentin.

Do not ask the patient or the parent whether or not the patient has been following instructions. The parent probably does not know and the patient will be reluctant to admit backsliding. It is much safer to "ask the tissue" involved.

Caries Activity Tests—Whatever caries activity test is used, saliva samples should be obtained on arising in the morning before brushing the teeth. At least two tests should be run before caries control measures are actually instituted so that a base line of caries activity may be established.

Examination of the Carious Dentin—As caries activity is reduced, the physical character of the dentin changes. If caries control measures

are effective these changes will be seen within ten days to two weeks.

Oral Hygiene

Artificial Cleansing—It has been demonstrated that brushing the teeth immediately after each meal reduced the caries attack rate by 50 to 60 per cent. Toothbrushing should therefore be encouraged after each meal where possible and immediately following the ingestion of any fermentable carbohydrate. *When brush and dentifrice are not available, a plain mouthrinse with water will serve as an effective substitute.*

Natural Prophylaxis—While it is not always possible to brush the teeth immediately after eating, it is both practical as well as desirable to invoke the aid of the natural cleansing action of fibrous foods at the end of each meal. The patient should be taught to eat celery, apples, a whole orange, or other fibrous food at the end of each meal.

Removal of Active Caries—Elimination of all active decay in the tooth makes that tooth surface caries inactive.

Plan of Removal—All carious enamel and dentin must be removed. The procedure must be systematic. Complete one quadrant of the mouth each week during the six-week control period while educating the patient in sugar control and oral hygiene. No patient should be permitted to leave the chair with carious tissue still remaining in any tooth in the quadrant treated at that sitting. Never begin the placement of permanent restorations before all the decay in all the teeth has been removed.

Action of Eugenol—After removal of the carious tissue, temporary sedative fillings should be inserted. The temporary filling material of choice is a thick paste of zinc oxide and eugenol with the addition of a few cotton fibers to give it added strength, and a small amount of clear rosin and benzoic acid to hasten the setting time. This material is useful for four reasons:

1. Antiseptic: Prolonged contact with the eugenol in a well-sealed cavity effectively sterilizes the attacked dentin.

2. Local Anesthetic: Eugenol controls the pain that may result from removal of the carious dentin which served as insulation over the sensitive dentin and pulp against air and saliva.

3. Pulp Sedative: Eugenol relieves the inflammatory condition of the pulp. It will not irritate the pulp and may in fact permit normal secondary dentin formation. Dentin and pulp treated with eugenol over a period of two to three weeks are comfortable and less sensitive to action of the bur.

4. Hermetic Seal: Zinc oxide-eugenol is an effective seal. It prevents the entrance of oral fluids and bacteria into the cut dentin.

Period of Restoration and Prevention

Restoration—The control phase of the treatment has been time-consuming. In the four weeks remaining of the total treatment period, it is necessary to see the patient twice each week for eight office visits. During this time the entire mouth must be restored.

Multiple Inlay Techniques—They are rapid yet when properly completed multiple inlay techniques will meet the requirements of the most exacting operator. Where indicated, modified slice-box inlay preparations may be used for primary teeth. It is not necessary to remove all the zinc oxide-eugenol cement. This material makes an excellent cement base when it is fully hardened.

Banded Amalgem Crown—For primary or permanent teeth which are so badly broken down that it is impossible to get retention for the slice-box inlay, the banded amalgam crown may be used. It serves all the functions of a nonabutment full cast crown and requires very little time to construct. It is a durable, strong, and clean restoration.

Other Restorations—(1) Anterior teeth are restored with restorations appropriate to the existing situation. (2) If teeth must be extracted, space maintainers should be placed if they are indicated. (3) Permanent prostheses may be inserted at a later date. (4) Pulpotomy and pulpectomy techniques are advised in teeth whose pulps have been exposed.

Prevention

Low caries activity as judged by lowered Lactobacillus counts may be expected for some time after the sugar control regimen has been discontinued. However, it is wise in cases with rampant caries to continue the sugar control regimen for as long as possible.

Topical Fluorides—There is abundant evidence that the topical application of fluorides does prevent the initiation of caries in 40 per cent of the teeth to which it is applied. It is essential to apply topical fluoride during the period of restoration at each sitting for a total of four to six applications. The fluoride solution must *not* be applied on open *cavities*. Penetration of fluoride ions into the pulp may cause inflammation and possible death of this tissue.

Frequent Checkups—(1) The rampant caries patient should be checked at monthly intervals for evidence of new caries by clinical examination, bitewing x-rays, and caries activity tests. During this time he should be retained on the low sugar diet. (2) If caries activity remains low for three months, increase the period between checkups to three months. (3) Topical fluoride application should be repeated at yearly intervals or whenever new teeth erupt.

Length of Control—It is advisable to keep the person who has experienced rampant caries on a control program until it is certain that he is past the periods of acute exacerbation. A patient who is once susceptible to rampant caries must be assumed to be always susceptible. This patient is never completed. He must be placed on frequent recall and the caries control program must be re-initiated at the earliest indication of a flare-up.

Adapted from Illinois Dental Journal **20**:407-423 (September) 1951.

The EDITOR'S Page

PERIODONTAL disease does not receive the attention that it deserves from the general practitioner. This is a blunt statement but one that can easily be verified by visiting the average dental office or by talking with the average dentist outside the office. Our concern with mechanical affairs and with techniques has lead us to be largely unconcerned with periodontal disease unless a surgical phase, a splint, a mouth reconstruction, or an occlusal equilibration is involved. The biology of disease has captured but little of our interest.

The patient coming to the dentist with acute periodontal disease, such as Vincent's infection, wants relief. He is in the same category as the patient who consults the physician with an acute heart condition. He wants relief from pain and discomfort, not a prolonged examination of his past life with a catalogue of his dietary and other indiscretions.

The patient coming to the dentist with a chronic gingivitis or with a more advanced periodontitis with pocket formation is in the same attitude as the person with any chronic disease that is not painful, disabling, or disfiguring; namely, he has developed a protective aura of indifference. The condition has developed so slowly and the patient has made his adjustment to the condition so that he is seldom anxiously alarmed.

The dentist who has met with rebuffs and indifference to his suggested therapy develops in time an indifference himself to periodontal treatment. He views it as both a thankless and profitless venture. Possibly, if he were to see periodontal disease against a background of complex etiology (genetic, bacterial, nutritional, endocrinologic, mechanical, and emotional) he might develop more interest and be challenged more deeply by the subject.

With the exception of the emotional factors in etiology, most of the other aspects of periodontal disease have been explored with commendable attention. The emotional factors have been mentioned frequently, observed by clinicians often, but recorded only occasionally. A group from Columbia University[1] has recently made the attempt to conduct an acceptable study on this subject. Although their report is larded with a generous amount of the peculiar and often nonspecific jargon of the psychiatrist, there is enough substance in the article to stimulate interest. Twenty-two cases cannot be considered a monumental study, but the authors should be complimented for their enterprise even if some of their conclusions may be hard to understand.

This is the summary of the report: "Six cases of acute necrotizing gingivitis infection and 16 cases of chronic periodontitis were studied by a psychiatrist, a consultant dentist, and a periodontist. The following observations were made:

"1. The most striking psychological characteristic of the group as a whole was the prevalence of oral dependency as a central life problem.

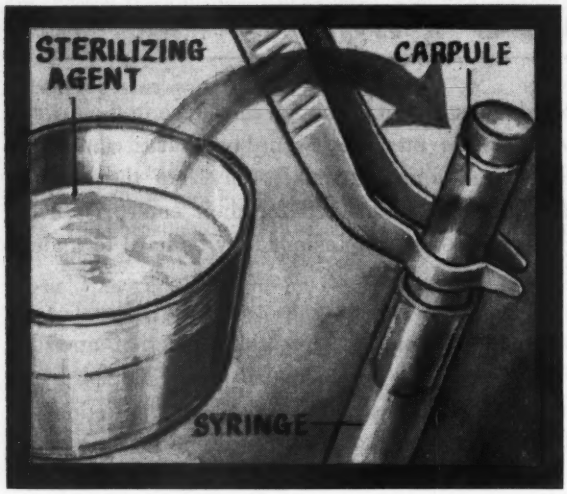
"2. The cases of acute necrotizing gingivitis occurred in the youngest age group and bouts were, in all instances, precipitated by acute anxiety arising from a life situation of conflict about dependency and/or sexual needs. Local factors and oral habits were at a minimum.

"3. The chronic periodontitis cases had a background of longstanding, less acute conflict, mainly involving dependency needs. There was considerable marital conflict and many psychosomatic symptoms involving the gastric area and the head and neck area. Bleeding gums were often noticed as occurring at times of greatest anxiety. Bruxism was an extremely frequent habit.

"4. A group of 10 periodontosis cases, studied in less detail, offered a contrast as having much less evidence of either neurotic trends or destructive oral habits. This suggested that degenerative oral processes are less correlated with emotional conflict than are the inflammatory processes involving primary soft tissues.

"5. Best results were obtained in the younger age group where local periodontal treatment was combined with more than routine interest in the patients as a whole and their problems of living. A psychiatrist is not necessary for this type of superficial supportive treatment. A social worker or a psychiatrically aware dentist can do much in improving therapeutic results, by making the patient more aware of the larger aspects of his problem and in stimulating more interest in the care of his mouth."

[1]Moulton, Ruth; Ewen, Sol; and Thiernan, William: Emotional Factors in Periodontal Disease, Oral Surg., Oral Med., and Oral Path. 5:859 (Aug.) 1952.



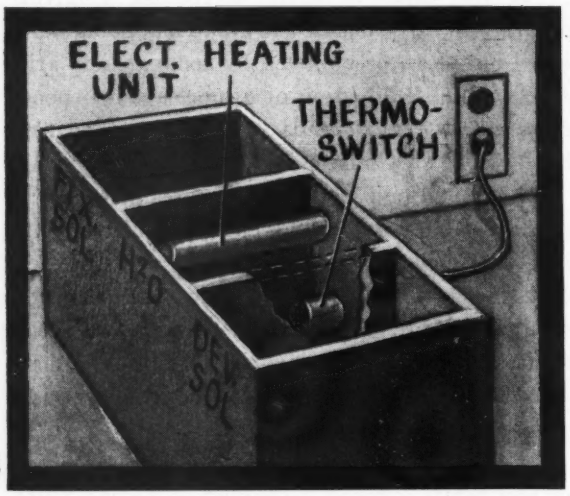
1

Clinical and Laborato

Holder for Anesthetic Tubes

Capt. William Granirer, USAF (DC) Sampson Air Force Base, N.Y.

1. Bend the beaks of a pair of cotton pliers to conform to the shape of an anesthetic tube. Using these pliers, the anesthetic tube may be removed from the chemical sterilizing solution and inserted in the syringe without breaking the chain of asepsis.



2

Temperature Control of X-ray Solutions

E. A. Franks, D.D.S., Silver Lake, Indiana

2. At the bottom of the water compartment insert a thermoswitch through the wall of the tank and set the switch at 65 degrees Fahrenheit. On the opposite wall of the water compartment place an electric water heater element. Allow the water to trickle through the tank continuously. The thermoswitch will hold the temperature of the water at a constant 65 degrees Fahrenheit.

3

An Aid to Operative Dentistry

Bruce L. Douglas, A.B., D.D.S., US Naval Hospital, San Francisco

3. Place a metal cheek retractor in position and secure the other end to an ordinary towel. This type of retraction is useful in all operative procedures and particularly so when the Nealon brush technique is used for acrylic restorations.

READERS *are Urged to Collect* $10.00

For every practical clinical or laboratory suggestion that is usable, DENTAL DIGEST will pay $10.00 on publication.

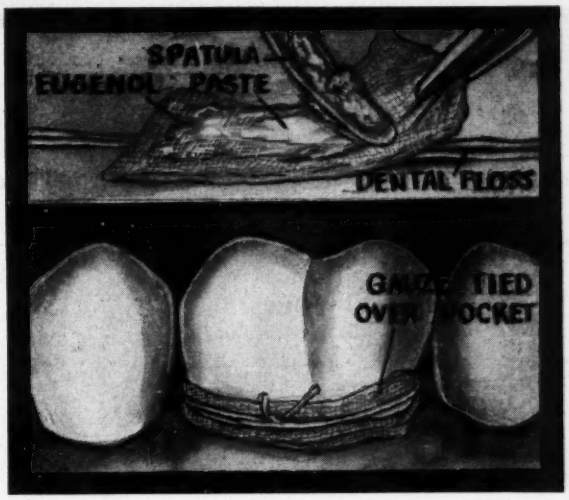
You do not have to write an article. Furnish us with rough drawings or sketches, from which we will make suitable illustrations; write a brief description of the

SUGGESTIONS . . .

Packing for Periodontal Pockets

C. Kalpakian, D.D.S., New York

4. To secure longer action of medication inside the pocket, prepare a thick paste of eugenol, rosin, and zinc oxide. Cut a strip of gauze one-quarter inch wide and 1 inch long. Incorporate the paste into the gauze. Place a double piece of dental floss flat on the gauze. Fold the gauze over the floss and tie around the tooth to cover the pocket.

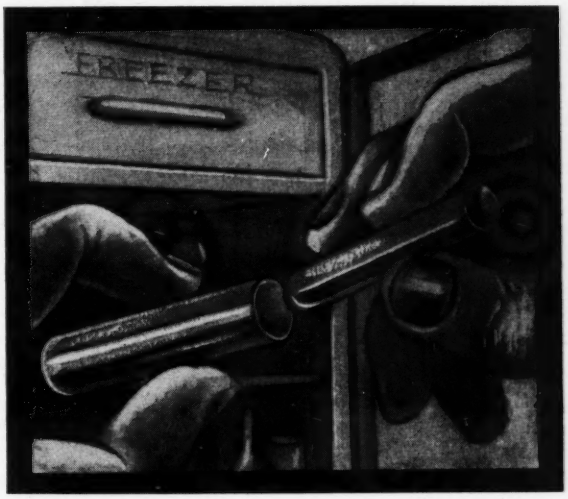


4

Freeing the Metal Plunger in a Syringe

N. Rege, Kvinesdal, Norway

5. If the metal plunger in a glass syringe is stuck, a few minutes in a refrigerator will cause the metal to shrink. The plunger is then easy to remove.

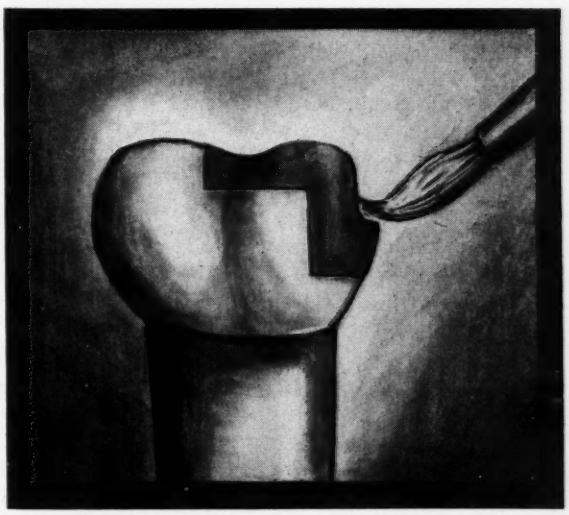


5

Manipulation of Indirect Patterns

Enrique Estrada H., D.D.S., Guatemala City, Central America

6. Using an amalgam, copper-plated, or stone die that has been coated with thin mineral oil, apply self-polymerizing acrylic by the brush technique. The pattern may be tried in the mouth and the contact points corrected with inlay wax.



6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time. Turn to page 558 for a convenient form to use.

Send your ideas to: Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

MEDICINE and the Biologic Sciences

The Post-Coronary Syndrome

The patient who survives the first twenty-four hours following an acute coronary thrombosis must look forward to three difficult periods:

(1) The first phase lasts from two to eighteen days. The prognosis is precarious because of cardiac insufficiency (which is a direct result of damage to the myocardium), serious arrhythmia, thromboembolic phenomena and shock.

(2) The second phase begins after the patient becomes ambulatory. The greatest threats to life are congestive heart failure, angina pectoris, and another coronary occlusion. Mortality is greatest during these first two periods.

(3) The third phase begins when the patient attempts to resume his ordinary activities and returns to work. Usually there is a definite symtom complex occurring within four to six months after the acute attack. This may be termed the post-coronary syndrome. It consists of some degree of pain, dyspnea, and weakness. These events must be recognized in the rehabilitation of the patient.

The main complaints are the following: (1) tightness or soreness in the front of the chest, (2) difficulty on breathing, and (3) weakness or tiredness. Frequently, after several days or weeks of these symptoms, the patient, who recently has had an unforgettable "coronary," again seeks relief from his physician. Sometimes he quits work and stays home, brooding over the feeling that he is finished, unable to work any longer and can never be as he was before the attack.

The patient may continue to work but always with the constant dread that the symptoms are due to a badly damaged heart. The psychic reactions to doubt concerning the integrity of the heart seem to be much more violent and profound than is the case with illness concerning any other internal organ.

Once this syndrome is recognized and the difficult period is by-passed, the patient can work and continue his normal activities without fear. The man who has a post-coronary syndrome should not be regarded as having anxiety or cardiac neurosis. He has suffered a cardiac assault beyond his understanding or description and the symptoms which occur after his return to work make an extremely difficult period for him. The anginal syndrome, congestive heart failure, or another attack of coronary occlusion may occur at any time, whether or not the patient resumes work. Optimism and reassurance are therefore important features of treatment.

Some authorities contend that patients spend too long a time in the treatment of acute coronary thrombosis. After a reasonable convalescence, severe restrictions of physical activity beyond the requirements imposed by limited cardiac reserve afford little or no protection to the patient who has survived an acute attack. Work does not aggravate the symptoms which characterize the post-coronary syndrome, nor does it predispose the patient to further attacks of coronary occlusion or to heart failure. The occurrence of these symptoms of the post-coronary syndrome, unless severe angina pectoris or definite cardiac failure is present, is not an indication to advise the patient again to quit his work.

The outlook for these patients is good, for the symptoms tend to disappear as activity is continued. Constant watchfulness for definite cardiac failure combined with reassurance are the important means of caring for patients with post-coronary syndrome.

Flaxman, Nathan: The Post-Coronary Syndrome, Postgrad. Med. **10**:367-369 (*November*) 1951.

Lung Cancer —Cigarets

Doctor Evarts A. Graham of St. Louis believes that cigarets may be an important factor in the etiology of bronchogenic carcinoma. Heavy smoking and lung cancer are far more common among men than women, in almost identical ratios.

In 1912 the proportion of male to female involvement was about 3 to 1. Today the ratio is at least 18 to 1. The difference is not the result of a relative female immunity to the disease, since tumor transplantation is equally successful in male and female animals. Moreover, men with lung cancer have essentially the same male hormones as healthy men. The discrepancy is probably explained by the fact that heavy smoking among females is largely confined to young women who have not yet had time to smoke for twenty years.

The curve of increased cigaret sales in the country parallels that of pulmonary cancer incidence. Among men, 51 per cent of those with lung cancer report smoking more than a pack daily for at least twenty years, in contrast to only 19 per cent of the men without tumor.

Cigarets do not seem to stimulate malignant growth unless at least half a pack has been smoked daily for twenty years or more. The carcinogenic substance in cigarets is not identified but may be tars or insec-

ticides in tobacco, arsenic in paper, or other components of the inhaled smoke. Other factors must also be involved since 2 per cent of persons with bronchial cancer have never smoked.

The increased number of lung cancers has been largely of epidermoid tumors or related undifferentiated neoplasms. The former originate in adult bronchial epithelium, under carcinogenic influences. The latter are usually variants of the epidermoid or squamous group that occur principally in males.

The American Cancer Society is currently conducting a survey among men over fifty. This survey is to continue for a number of years. Evidence compiled from this information should be of great value.

Graham, Evarts A.: Primary Cancer of the Lung with Special Consideration of its Etiology, Bull. New York Acad. Med. **27**:261-276 (*June*) 1951.

Psyche and Allergy

Evidence has been recorded in medical literature to show that emotional factors may precipitate allergic manifestations in many cases. It is generally maintained that emotional factors are not responsible for the etiology of allergic disorders.

No matter how much the superficial behavior of asthmatic patients may vary, they appear to have in common a deep-seated emotional insecurity and an intense need for parental love and protection. Fear of losing their mothers' support, good will, and love is an outstanding feature of their premorbid qualities. Their sense of insecurity may be overlaid and masked by defense reactions of which overhelpfulness, denial, and confession are the most important ones.

Many patients who suffer from urticaria have experienced emotional upsets. Disturbing events entailing threatened or actual withdrawal of love frequently precede the onset of urticaria and of its relapses. They include such events as desertion or impending desertion by husband, wife or sweetheart, real or imagined lack of love in marriage, and departure of the husband for service abroad.

Atopic eczema is a disease which occurs in emotionally insecure individuals. Many feel that they have not had their fair share of affection as children and are apt to carry over into adult life an undue, childlike dependence on either of their parents or both, usually the mother. Their need for affection, attention, support, and protection may find overt expression in the form of submissiveness, docility, or display of helplessness. Or, by way of overcompensation, their need may be concealed behind ambition, self-drive, self-assertive handicaps in their social relationships, and occupational achievements. Frequently lack of self-confidence proves a serious handicap in their social relationships and occupational achievements.

Wittkowr, E.: Psyche and Allergy, J. Allergy **25**:76-86 (*January*) 1952.

Coronary Sclerosis—Genesis

It has been demonstrated that a person who has suffered a coronary attack has a predilection for the disease. Man is virtually the only mammal naturally susceptible to atherosclerosis.

Atherosclerosis is a metabolic disease comparable to diabetes, resulting from disturbances in cholesterol metabolism. It is apparently under control of the thyroid gland. The lesions of the disease are produced focally in the arteries by deposition of excess cholesterol in ester form within macrophages at selected sites in the arterial intima.

The coronary form of atherosclerosis is caused by intermittent invasion of the coronary intima by waves of macrophages carrying crystalline esters of cholesterol. The disease is chronic except in the highly susceptible. Years elapse in most cases before cholesterol deposits produce a critical lesion. The intervals between the cell migrations may be days to months and are usually longest for persons with no hereditary predisposition to the disease.

The crystalline esters within macrophages stimulate connective tissue growth. The maturing connective tissue crushes the macrophages, decreases blood supply, and causes necrosis. The cholesterol-ester contents of the macrophages are dissipated and a fibrosed lesion is produced. The process eventually thickens the coronary intima and narrows the lumen.

Between the periods of deposition of excessive cholesterol in the coronary intima, the cholesterol metabolic activity is sufficient to prevent these deposits. The ingestion of large amounts of cholesterol rather than sudden increases in cholesterol synthesis is probably responsible for the periods of excess deposition.

The waves of cholesterophages are self-limited. The macrophages accumulate in the subendothelial layer of the intima and then move in a body into the deep layers of the intima. Invasion of the media is unusual. The lesser waves are probably temporary and may arise from excessive ingestion of cholesterol in a single day.

In view of these findings many investigators believe that low-cholesterol, low-fat diets are definitely indicated in the treatment of persons who are susceptible to coronary disease.

Leary, Timothy: Genesis of Coronary Sclerosis, New England J. Med. **245**:397-402 (*October* 15) 1951.

Effects of the Rice-Fruit Diet

Profound changes in the composition of the body are produced by the Kempner rice-fruit diet. Although the diet is capable of lowering the blood pressure in many hypertensive patients, the diet may be dangerous under certain circumstances. It is never curative.

When used for short periods the diet is helpful to relieve symptoms of hypertension. Often high blood pres-

sure will decline to normal levels while eating the diet. Prolonged use of the unmodified diet is objectionable on theoretic grounds.

The regimen is fairly adequate in calories. However, the 20 grams of protein daily is of semistarvation level. Patients who adhere strictly to the prescribed foods lose about 3.3 pounds each week. The early decrease in weight results almost entirely from loss of fat and extracellular fluid.

Patients of normal weight probably begin to consume active tissue, such as muscle, for energy production soon after starting the diet. An obese hypertensive patient benefits by reduction in body fat stores but even an overweight patient probably acquires a negative nitrogen balance on the strict Kempner regimen.

An extremely low salt content (15 to 20 milligrams of sodium daily) is an essential feature of the diet. Addition of 10 grams of sodium chloride causes rapid return of the headache and dyspnea associated with a definite rise is blood pressure. The risk of sodium depletion or the salt-depletion syndrome, especially in patients with renal insufficiency demands some discrimination in application of the diet.

Besides losing fat, patients eating the rice-fruit diet lose a significant amount of extracellular fluid. Plasma and blood volumes also tend to decrease. The safety of prolonged existence with severely contracted bodily fluid spaces appears questionable.

The rice-fruit diet cannot be considered a fundamental therapeutic approach to hypertension. Semistarvation and extreme salt restriction are probably the effective features of the diet, but elevation of blood pressure is certainly not due to normal food or salt intake.

Addition of 40 grams of salt-free animal protein to the patient's daily menu eliminates many of the undesirable features of the diet without abolishing the depressor effects. Patients taking the modified diet do not lose weight and are free of hypertensive symptoms. Blood pressures remain at the same lowered level.

Chapman, Charleston B.; Gibbons, Thomas; and Henschel, Austin: The Effect of the Rice-Fruit Diet on the Composition of the Body, New England J. Med. **243**:899-905 *(November)* 1950.

Cancer from Draining Sinus Tracts

Evidence has been gathered to show that a chronic osteomyelitic sinus tract may give rise to carcinoma. Usually the new growth occurs in men 40 to 60 years of age with a history of osteomyelitis and sinus tract formation of twenty to thirty years' duration. The tibia, the femur, and the bones of the foot are the commonest sites.

If a cauliflower mass appears at the sinus opening, or if a foul discharge occurs, carcinoma should be suspected. Often there is no external evidence of carcinoma and only a biopsy or roentgen examination of the bone or both will reveal its presence.

The carcinoma is generally of a relatively benign nature. There is a rarity of regional and visceral metastatic lesions.

There have been cases reported as a sequel to war wounds. It can be assumed that a patient with a chronic discharging sinus or an extensive adherent scar is never safe from the risk of malignant change. Prophylactic measures should consist of excision of adherent scars with, if necessary, their replacement by suitable pedicle flaps having a good blood supply.

Amputation should be performed if an osteomyelitic sinus persists for several years and does not yield to treatment. Warty changes of indolent ulceration of scars should be regarded with suspicion and investigated by biopsy. Any increase in pain or discharge in association with the sinus should receive prompt attention. If malignant changes develop, treatment should be as prompt and as radical as with any other cancer.

Editorial: Carcinoma Arising in Draining Sinus Tracts, J. A. M. A. **17**:1143-1144 *(November* 17) 1951.

Present Concept of Hysterectomy

During recent years the attitude toward hysterectomy has changed considerably. Conditions that formerly were treated by conservative measures are treated more and more frequently by removal of the entire uterus.

In private practice the indications in order of frequency, for hysterectomy, are (1) fibroid tumors, which are responsible for about 44 per cent of hysterectomies, (2) endometriosis, (3) prolapse, (4) fibrosis, (5) cervical stricture, (6) functional bleeding, (7) malignant growth, (8) ovarian cyst, and (9) pelvic infection. Frequently two or more of these conditions coexist.

The experienced general surgeon can perform complete hysterectomy with perfect safety, if care and discretion are used. The main advantage is that the possibility of cervical and endometrial cancer is eliminated.

No vaginal shortening or prolapse need result, and the sexual act is not affected. Ovaries are usually saved and hormones unaltered. The stormy menopause frequently brought on by irradiation is avoided.

Less thorough procedures may fail to cure, and too many are followed by discharges, pelvic pain, or stricture of the cervix. After incomplete hysterectomy, the cervical stump eventually may require resection.

Hysterectomy may be warranted not only for primary reasons but with any pelvic procedure at or near the menopause, or at younger ages if the family is complete, unless indications are urgent. The operation should never be done merely at the patient's request.

The risk of thrombosis and embolism is much less with early rising. If thrombophlebitis is suspected, superficial venous ligation is done. The hospital stay seldom exceeds eight

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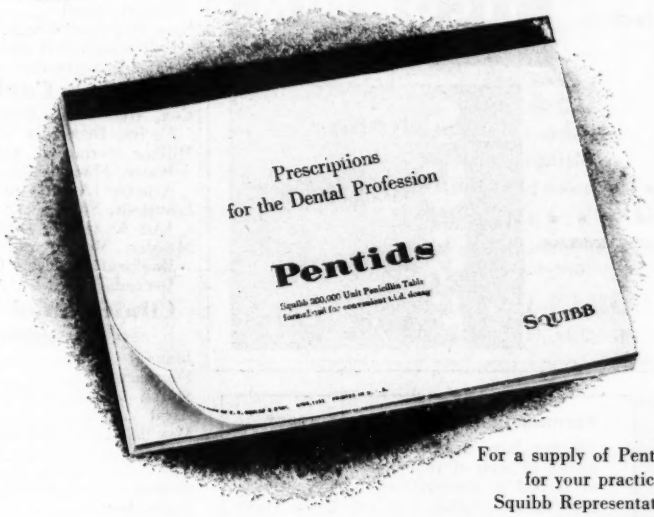
1. Keefer, C. S., Postgrad. Med. 9:101, Feb. 1951
2. Flippin, H. F., and Israel, H. L., Med. Clin. North Amer. 34:1653, Nov. 1950



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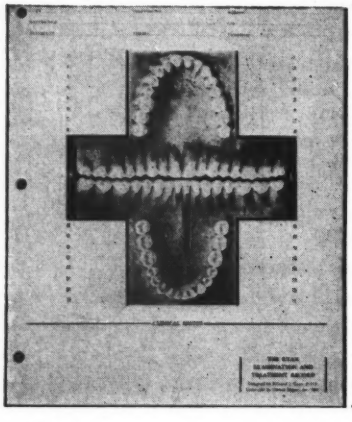

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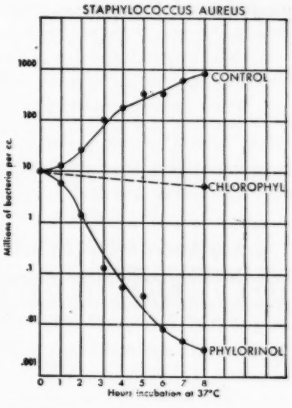

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Roentgenographic Examination of Teeth

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What is the consensus regarding roentgenographic examination of the entire mouth every six months, beginning at the age of six years, for detecting dental cavities?

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From Queries and Minor Notes, *Journal of the American Medical Association* **150**:528 (Oct. 4) 1952.

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Contra-Angles

Oldsters and the Draft

Reports from around the country are beginning to come in describing the experiences that dentists are having when they appear for Selective Service physical examinations. Most of the Priority III registrants are fathers and some are grandfathers. Not a few of these registrants have been in practice for twenty-five years and have occupied positions of influence in their communities. For these men to be subjected to indignities by tough young sergeants sitting out a war behind desks was not an intent of the law that created the special registration of dentists and physicians under age 51.

One of the indignities reported is the examination for venereal disease. The "examination" is conducted by a young enlisted man. The dentist or physician passing through the assembly line is ordered to bare and to manipulate his genitals for inspection by the enlisted man for the purulent evidence of gonorrhea. This inspec-

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tion routine is not unknown among the denizens of Skid Row or in the military among hot blooded young men who have returned from a shore leave in a charming foreign port. The dentists and physicians in the country in the 40-50 age group are not likely to be infected with gonorrhea and if they were they would have sense enough not to appear for a physical examination at an induction center with an untreated case that could be detected across a table by a professionally untrained young enlisted man.

A second indignity is to be required to prance around in the nude while undergoing all manner of examinations *en masse* and to sit nude during the long paper-shuffling routine. Although prudery is usually not a prominent part of one who is himself conducting physical examinations and hearing the intimate details in the lives of people, the well-integrated dentist or physician knows that he must have regard for and respect for the sensitivities of his patients.

We are claiming no little halos for the special registrants in Priority III and are not asking that they be treated as particularly precious hunks of protoplasm. We are saying that the experiences, the conditioning, the training, the maturity, of the examinee in the 40-50 age group are quite different from the attitudes found among youngsters in the full bloom of their gregariousness.

It is not far removed from the ludicrous to have enlisted men taking temperature, blood pressure, and pulse reading of men who are eminent in medicine, or to have enlisted personnel checking the dental conditions of dental authorities, or to have heavy-handed, bungling technicians withdrawing blood from the circulatory systems of skillful operators.

The dentists who have reported of their experiences have done so with the mordant edge of humor. Humor, however, is often the protective covering that drapes hostility. What is said in jest and apparent good spirits has frequently deep undertones of the serious. Take my friend Seth Shields' letter to his home community draft

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"Unfortunately, for all of us, Washington tells you what to do and how to do it. Therefore, it's the gang from Missouri, not you, that I'm blaming for what happened to the taxpayers and the author: Selectee Seth William Shields, age 47, No. 12-34-05-1, August 1 and August 15, 1952.

"Yesterday, following your orders, I arrived in the bus station in Indianapolis at 12:01 p.m. a short five hours after having left Brownstown which is a scant seventy miles away. I was proud to have been placed in charge of the group of selectees (even though I was the only one in the group) and determined to see that we carried out our assignment correctly.

"The army bus, which usually takes us selectees to the examining center was nowhere to be seen in the station. The Greyhound dispatcher was consulted by the group leader (me), and he said the Pennsylvania Greyhound bus lines had no authority to deliver the group to the induction center at 342 Mass. Ave.

"I told him that the Draft Board at Brownstown said that he must take me there. Then, he told me!

"I said simply, 'So's your Aunt Emma!' However, there wasn't too much personal danger involved, because he was behind a barred window and a locked door.

"Being both tired and hungry, I sat down. Carefully and methodically I thought the situation over for a full three and a half seconds. Then I called the city police.

" 'Police headquarters,' a not too canine voice barked at me, 'Sergeant Smith speaking!'

" 'Sgt. Smith,' I said, 'this is Selectee Seth William Shields, No. 12-34-05-1, speaking. I'm here on orders from Local Board No. 34, Selective Service System, Brownstown, Indiana, to have another x-ray picture made of my chest. The x-ray taken when I was examined August 1 proved to be unsatisfactory. Send a squad car to the bus station, at once, to take me to the examining and induction center, please!'

" 'Now by just whose authority do you think I can send a squad car for you, young man?'

"I liked that 'young man' stuff.

" 'By the authority of the crackpots in Washington,' I answered courageously, 'who're spending hundreds of dollars having a forty-seven-year-old dentist examined and re-examined to see if he's physically fit for service in the armed forces of the United States despite four previous flat rejections for service in the dental corps of the U.S. Navy, U.S. Army, U.S. Coast Guard, and U.S. Public Health,' I answered none too briefly.

" 'Sorry, Pop—I mean Selectee Shields—I just can't send a squad car for you. However, if you get in trouble —and it sure looks like you're headed for it—have 'em call me at headquarters.'

"Now, dear draft board, I really

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Amco
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was in a quandry. Stranded in the bus station—no visible means of transportation—no help available—no one at hand from whom to take orders. It was indeed a situation up with which I should not have had to put.

"Suddenly, I realized that my status as a civilian was in jeopardy. 'I've got it!' I thought. 'A solution at last!' I snapped my fingers briskly. 'That's it! The M.P.'s! Why not consult the Military Police? They'll have to help me!'

"I looked all over the bus station for a military policeman. None was in sight. A thorough but leisurely search was made of all the cocktail lounges in the surrounding vicinity looking for M.P.'s. The search was fruitless. Please, dear draft board, report this incident to the provost marshal. We selectees should be properly policed at all times. I definitely found out after that search.

"I called Sgt. Smith at headquarters, again. I asked Sgt. Smith where to go, and Sgt. Smith told me where to go!

"Timidly I asked, 'Can't you think of a location with a more moderate temperature? It's pretty hot down there.'

" 'Why don't you call Military Police headquarters?' he asked, rudely ignoring my request for a change of venue. 'Their number's Cherry 1531.'

"I dialed the number and Sgt. Quamire answered.

" 'Sgt. Quamire,' I said, 'this is Selectee Seth William Shields, No. 12-34-05-1, speaking. I'm here on orders from Local Board No. 34 Selective Service System, Brownstown, Indiana, to have another x-ray made of my chest. The x-ray taken when I was examined August 1 proved to be unsatisfactory. Send a jeep to the bus station, at once, to take me to the examining and induction center, please!'

" 'Why, hell's bells, bud! It's only four blocks over there. Why don't you walk?'

"I liked that 'bud' stuff, too.

" 'I'm not allowed to,' I answered, clipping the crisp words in true military fashion as much as my false teeth would permit. 'Our group leader, August 1, said the authorities would not sanction such a waste of man power when expensive automobiles and buses were literally crying for just such uses.'

" 'Are you at a pay phone?' he demanded, 'and what's the number?' I told him 'yes,' and gave him the number.

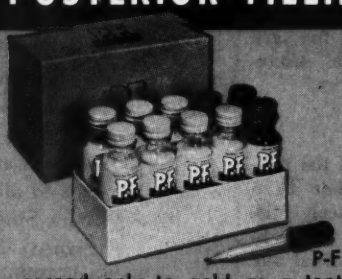
" 'Wait right there!' he ordered. 'I'll call the induction center and call you back.'

"Fifteen minutes later, he called back. I was near exhaustion. The intense August heat surrounding me in that closed telephone booth was terrific—almost unbearable since the experiences encountered searching for the military police in the area surrounding the station added greatly to it. But, I obeyed his order! 'Theirs not to reason Why—Theirs but to do —etc., etc.' I want the good conduct medal, please, for behavior under heat that was hot enough to be called fire.

" 'Selectee Shields!' Sgt. Quamire snapped. 'The examining and induction center has granted permission for you to walk over! Good luck, Old Boy!' (*Continued on page* 564)

USE P-F

POSTERIOR FILLING



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7—17 gm. Powders (1 each gingival dark, gingival medium, gingival light, occlusal grey, occlusal white and 2 occlusal transparent), 2—15 cc. Liquid, 1 eyedropper and sample of "Alevol" (Amco's new sterilizing and desensitizing solution), a $28.50 value only $25.00. Sold with full money-back guarantee.

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In your ORAL HYGIENE this month

The majority of dentists still practice individually, but, says Edward H. Winsor, "The agglomeration of individual dental practices into group practices is a phenomenon of increasing frequency and importance."

The benefits gained from group practice are many. Sharing space, personnel, laboratory facilities, and special equipment, enables each dentist to operate with greater ease, efficiency, and economy than he could possibly achieve in individual practice.

★ ★ ★

"What! No Women Dentists?"—Doctor William Eggleton is concerned with the apparent decrease in the number of women interested in training for a career in dentistry. He feels that the profession—and perhaps the dental schools—should offer more encouragement to women.

★ ★ ★

"What Happened to Ethics?" asks Doctor Daniel A. Markman, as he cites examples of questionable action on the part of some members of the profession. He suggests a plan by which national and local societies might empower committees to act to "protect ourselves, the results of our labor, and the public from the lack of integrity and professional discretion of these few practitioners."

★ ★ ★

The second installment of the two-part article, "You Are Richer Than You Think," itemizes thirteen mistakes that are commonly made in planning estates. The most usual one is the reliance on joint-ownership to automatically take care of inheritance. Ernest W. Fair explains this, and other misconceptions, as he quotes the authoritative advice of K. Kauffman-Grinstead.

★ ★ ★

"To Influence Patients, Be Positive," advises Doctor Jerome D. Lehman. Many a patient is so susceptible to suggestion that the very course of his recovery from minor surgery may be affected by positive or negative suggestions. To some dentists, a positive attitude comes naturally; others may have to cultivate the ability to speak and act with assurance. Confidence is "catching," but it must always be *true* confidence, not an overbearing imitation.

"I did not like that 'Old Boy' stuff.

"I took a cab.

"When I arrived at the center and reported I found the gosh darned x-ray machine was broken down completely. I was told to report to Dr. B's office in the Hume Mansur Bldg. to have the picture made.

"Dr. B's a radiologist who's taken a picture of my chest each year for seven years not because of any pathology present but purely as a precautionary measure. I pay him a fee for this service each year. The picture which he took Friday was made at our expense, Fellow Taxpayers. It is just another small but foolish reason why the deductions from our weekly pay checks keep increasing.

"My three telephone calls in Indianapolis totaled thirty cents. The cab bill was one thirty-five—station to center—center to Hume Mansur Bldg. to station. The grand total figures at $1.65. Send me a check for that sum, please, by ruturn mail. This will liquidate the obligation which cannot be considered anything but just, because surely, you wouldn't want a forty-seven-year-old dentist, one of whose patients thinks he's not even in physical shape to be a civilian, to spend his personal funds to get himself drafted, would you, or would you?

"Think it over.

"Every good wish and affectionate personal regards to all of you.

"Yours Sincerely,

"(Signed) Selectee

"Seth William Shields,

"age 47, No. 12-34-05-1"

Seth Shields, whom I have known and enjoyed for years, has absorbed some of the penetrating philosophy and the gentle humor of his native Indiana. Ken Hubbard, James Whitcomb Riley, Booth Tarkington, all were masters of the same skill, but behind the sayings of "Abe Martin" and the tribulations of "Little Orphan Annie," and "Penrod," we know that real problems and real people exist. So it is with Seth's visit to the Indianapolis induction center. So it will be with many other Priority III registrants when they go for physical examination.

—E. J. R.

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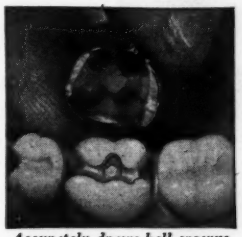

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"When you have to take chances to reach an objective, that's O.K.," says Lieutenant Rodriguez. "But when you can find a surer way to reach your goal, so much the better.

"I believe a strong, *peaceful* America is our objective. And the *sure* way to reach it is through backing *our* strength with *your* strength by investing in U. S. Defense Bonds *now!*"

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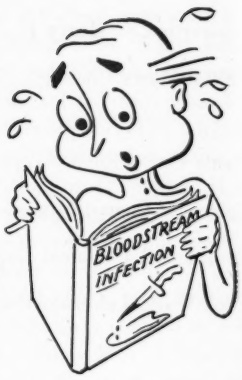

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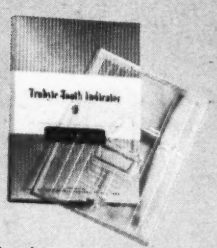

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